

A short time ago in a desert not too
far away...

EPISODE 01.01.16

THE INDUSTRY AWAKENS


The UAE film industry won a massive victory when key scenes for the new *Star Wars* movie were shot in the sands of Abu Dhabi. The shoot was the latest in a string of big budget Hollywood blockbusters that have based parts of their production in the country, providing the local industry with global exposure and invaluable experience.

On the back of this success, a new hope has sprung that a thriving and profitable local film industry can be established in the emirates in the coming years. But for those fighting to achieve this, many great battles lie ahead... p38



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**“The UAE has now
become the
shining star in
MENA to attract
major films”**

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**“If you ever passed
by a landfill and
saw all the birds circling
above, that’s kind of the
situation”**

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**“We, the Arabs
inside Israel, are
the only ones who
see both sides”**

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**“It’s quite clear
that they’re
moving in the
direction of a
devaluation”**

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How the cover gets made

"We're starting off the New Year by looking at one of the UAE's recent success stories: the film industry. There's this one film in particular which was recently released. You might have heard of it: *Star Wars*."

"Oh right. The one about living long and prospering, right?"

"No!"



"I'm kidding! Seen it already. Can't believe the moment when—"

STAR WARS

"NO SPOILERS !!!!!!!!!!!!!!!!"



"Sorry Darth Editor. Right, I know the feature goes into detail about the development of the industry here, but I can't miss this opportunity to do something Star Wars-related. Cue the John Williams theme song..."

"What do you think?"



"May the Force be with you"

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Middle East

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OPEC needs to find a new leader





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Opening Remarks

The Most Intimate Terrorism

By Paul M. Barrett

6

Plots outside the command and control of extremist groups are difficult to detect

Since 11 September, 2001, the death toll from extremist Islamic-inspired terrorism in the US stands at 45, including the 14 people killed on 2 December by the husband-and-wife shooters in San Bernardino, California. That's according to New America, a Washington research organisation, which found about the same sad tally—48—for victims of terrorism linked to white supremacists and other right-wing ideologies.

"Lines are blurring between the extremist Islamist threat and the kind of mass shootings we're all too familiar with in America," says Daniel Benjamin, a scholar at Dartmouth College who served as coordinator for counterterrorism at the US Department of State from 2009 through 2012. Regardless of their demented ideas, all of these killers operate outside the command and control of large terrorist groups or even small cells. Like the massacres at a Charleston, South Carolina black church last June and at an Oak Creek, Wisconsin, Sikh temple in August 2012, the bloodshed in San Bernardino lacked what Benjamin terms "terrorist follow-through": a claim of responsibility, issuance of demands, or effort to make any clear point.

"Talk about random. San Bernardino puts random into a new category," says Karen Greenberg, director of the Center on National Security at Fordham University School of Law in New York. As of this writing, it's still not clear why Syed Rizwan Farook, the American-born son of Pakistani immigrants, or his Pakistani-born, Saudi-raised wife, Tashfeen Malik, attacked a holiday party and training session at the social-services centre where Farook worked as a health inspector.

San Bernardino represents the sort of threat emanating from the self-proclaimed Islamic State (ISIS) movement in Syria and Iraq that the FBI has been warning about for the past year: Rather than just trying to persuade Muslims in Europe and the US to join the fighting in the Middle East, ISIS has shifted to calling on sympathisers to commit violence at home. ISIS's veneer of success—gaining control of territory, obtaining worldwide media attention—may make it an even more potent inspiration than, for example, the Yemeni cleric Anwar al-Awlaki. Authorities have identified the American-born al-Awlaki as having helped from a distance to radicalise the Tsarnaev brothers, who carried out the April 2013 Boston Marathon bombing, and Nidal Hasan, who killed 13 people in a shooting

at Fort Hood, Texas, in November 2009. American forces killed al-Awlaki in a drone strike in September 2011.

As its investigation has deepened, the FBI has said Farook and Malik were radicalised "quite some time" ago and discussed jihad and martyrdom online as early as 2013, before they married. Malik reportedly pledged allegiance to ISIS on Facebook at roughly the time of the shooting. The FBI continues to note the absence of evidence connecting the killers in a more substantive way to a larger group.

"What we don't know yet is where the radicalisation took place," says Benjamin, co-author of the book *The Age of Sacred Terror*. "Did someone drop the ball on intelligence? One of the most unsettling aspects is that the suspects reportedly weren't on the radar screen at all."

In his judicious Oval Office speech on 6 December, President Obama warned Americans to resist the impulse to "turn against one another by letting this fight be defined as a war between America and Islam." But he quickly added: "That does not mean denying that an extremist ideology has spread within some Muslim communities. This is a real problem that Muslims must confront without excuse."

That's a far more sensible assessment than the fulminations by several Republican presidential nominees about a "new world war," let alone Donald Trump's widely condemned call to bar all Muslims who aren't US citizens from entering the country until the nation's leaders "figure out what's going on."

But Obama's suggestion that American Muslims must police themselves still rubs some the wrong way. "I don't see why loyal Americans who happen to believe in Islam need to feel guilty or responsible for San Bernardino," says Osama Siblani, a Muslim of Lebanese descent who is a community leader in Dearborn, Michigan, and publishes the *Arab American News*. "Do all Christians," he adds, "have to feel guilty about Timothy McVeigh," the Oklahoma City bomber who killed 168 people in April 1995? "By talking about a war on 'Islamic extremism,' some American politicians are going to stir up Islamophobia and only radicalise more Muslims."

There's a difference, of course, between crudely ascribing guilt by association—which could indeed lead to greater Muslim alienation—and reasonably asking American Muslims to keep an eye out for troublemakers. In fact, Dearborn, a small city adjacent to



After the shootout:
The view from inside
the Farooks' pickup

Detroit that has a higher proportion of Arab-Americans and Muslims than any other place in the US, is already making such requests—and with some success.

Dearborn officials regularly convene meetings among federal and local law enforcement, social workers, activists, and residents of all religions. In addition, the city's police department sponsors an "intervention" programme that invites teachers, parents, and young people to identify troubled individuals—Muslim or otherwise—who appear to be candidates for radicalisation. "For any programme or policy to be effective, we depend on the total engagement of our community," says Police Chief Ronald Haddad.

Without naming names, Haddad describes a pending case in which Muslim parents turned in their 17-year-old son after he grew a long beard and began talking about violence, ISIS, and the evils of the US. The boy was forced into psychiatric treatment and now faces a competency hearing in court. Without evidence of imminent violence, Haddad says that's a better outcome than a criminal prosecution. "We're looking at ways to prevent a disaster before it happens," he explains.

In another recent case, classmates

alerted the authorities to a high school student who posted Internet pictures of himself posing with his father's guns. The father eventually agreed to surrender his firearms to the police, and the boy is receiving psychiatric care, Haddad says.

Dearborn's approach doesn't ensure violence will never erupt, and it may raise tricky civil liberties issues. But the city's attempt to move proactively merits close study and possible emulation. Haddad has consulted on several occasions with the FBI, which is quietly evaluating whether it can divert certain nonviolent ISIS sympathisers into counseling rather than arresting them.

That's not an easy call for hard-nosed law enforcement types. "A lot of people in the FBI view the intervention model skeptically, but it's worth exploring," says John Cohen, a Rutgers University criminal justice professor who until last year served as a deputy under secretary at the

The San Bernardino killers may have started planning while they were still dating

US Department of Homeland Security.

To identify likely villains, whatever their motivations, in advance, social science has found common elements, according to Cohen. We'll see whether these characteristics came into play in San Bernardino, but in other cases, they've included family dysfunction, a feeling of being thwarted, and a hunger to leave a mark on history. For a tiny fraction of Muslims, the lens of radical religious ideology magnifies such frustrations and yearnings.

Spending more than \$650 billion a year since 11 September on homeland security, the US has avoided another catastrophic World Trade Center-scale terrorist attack orchestrated from afar. American intelligence gathering and border protections are stronger than those in Europe, making it less likely the US will suffer something like the coordinated violence in Paris that took 130 lives in mid-November. But San Bernardino illustrates a new threat. "Rather than sending operatives, as they did in Paris, [ISIS] is inspiring disaffected Muslims in the US via social media—a very difficult phenomenon to stop," says Cohen. "We're going to need to be creative in meeting the challenge." **B**



► The Fed and Wall Street differ on how high rates will go

► To back the markets' view on rates, "you have to be pretty bearish"

The Federal Reserve is indicating that it will raise interest rates four more times before the end of 2016, but traders in the financial markets don't believe it. They're expecting just two more hikes in the coming year. The Fed's lack of believability on rates could complicate its job of steering the US economy next year and beyond.

The Fed damaged its credibility over the past half-decade by repeatedly stating that it expected to raise interest rates, only to back down when stronger growth failed to materialise. Traders made easy profits by betting against the central bank, defying an old maxim on Wall Street—"Don't fight the Fed." Now Fed Chair Janet Yellen and the rest of the monetary policymakers have to persuade the financial markets that this time, they really, really mean it.

On 16 December the rate-setting Federal Open Market Committee raised its target for the federal funds rate to a range of 0.25 per cent to 0.5 per cent from a range that touched zero, where it had been since

December 2008. The increase signals that Fed rate-setters feel that the US recovery, which began in June 2009, is finally strong enough that they can begin taking it off monetary life support. "The underlying health of the US economy seems to be quite sound," Yellen said at a press conference.

The Fed's own expectations for rates are set out in the periodically released "dot plot." Each dot in this chart represents a forecast for the fed funds rate by a member of the FOMC. The panel consists of the people on the Federal Reserve Board in Washington, currently five, and the presidents of the 12 regional Federal Reserve Banks. The committee members are asked to make forecasts for the end of each year. The identity of the person associated with each dot is not revealed. In the forecast that was released on 16 December, the median FOMC member—i.e., the one whose dot was in the centre of the cluster—predicted a federal funds rate of 1.25 per cent to 1.5 per cent at the end of 2016. That amounts to four

hikes, assuming each is a quarter point.

That range is significantly higher than what the market is expecting. The market is looking for the federal funds rate to be a little under 1 per cent a year from now, says Guy LeBas, chief fixed-income strategist at Janney Montgomery Scott. He bases his calculation on trading in the highly active eurodollar market, which traders use to bet on US interest rates. (The federal funds rate is what big banks charge each other for overnight loans; pushing it higher affects a wide range of other rates.)

One reason for the gap between the Fed and the markets is purely mechanical: The Fed voters were instructed to pick the single most likely level for the interest rate, whereas the financial markets take into account the entire range of possible outcomes, including the chance of a recession in the coming year that would drag the rate down.

Beyond that, the gap shows that participants in the financial markets, correctly or not, don't believe that the



Goldman Sachs, says the Fed's forecast is probably better than the financial market's. But he says the Fed rate-setters' predictions may be a bit on the high side because they contain an element of wishful thinking. The rate-setters, after all, aren't just observers; they're policy-shapers. Their forecasts for the funds rate after 2018 are clustered at 3.25 per cent to 3.5 per cent. The end-of-2016 dots are just a step along the way to that. "It's not just a pure forecast," says Hatzius. "It's about guiding expectations."

It can be a real problem for the Fed when the market doesn't believe it because, in monetary policy, expectations matter. Low interest rates in the market reflect low expectations for inflation and economic growth. Those expectations can be self-fulfilling—for example, businesses that don't trust that growth is coming won't hire and invest. In a 2 December speech to the Economic Club of Washington, DC, Yellen acknowledged that market measures of expected inflation had fallen to "historically low levels" this fall. She said that while she's not greatly worried at the moment, "declines in consumer and business expectations about inflation could put downward pressure on actual inflation." The danger of losing control of monetary policy is obvious in Europe. The European Central Bank wants the refinancing rate to be 0.05 per cent, but it's actually -0.24 per cent.

All that said, it looks as though the Fed does have the tools to get what it wants. The labour market has strengthened, and corporate balance sheets are stronger than they've been in decades. Worries about an emerging-market meltdown have eased slightly as the People's Bank of China pumps money into the Chinese economy. It may be time to dust off that old maxim: Don't fight the Fed. —*Matthew Philips and Peter Coy*

The bottom line The markets' distrust of the Fed's take on rates could complicate the central bank's efforts to normalise monetary policy.

Fed will raise rates as fast as it says. To justify higher rates, the Fed will need to see stronger economic growth and a rise in the inflation rate, which is below the Fed's target of 2 per cent. Jacob Oubina, senior US economist at RBC Capital Markets, thinks the market may be underestimating the Fed. "To agree with where the market sees rates for next year, you have to be pretty bearish about the prospects for growth in 2016," he says. It's common for the market to underestimate the pace at which the Fed will change interest rates, Oubina says. "I think this time it's even more pronounced because of the length of time we have been near zero."

Jan Hatzius, chief economist of

One Rate, Two Views

Projected federal funds rate

1.25%-1.5%

Range for the benchmark rate at the end of 2016, forecast by the median FOMC participant

0.92%

The Expected rate on 21 December, 2016, as implied by the eurodollar futures market on 16 December, 2015

Consumer Debt

For Indebted Russians, A Holiday Staycation

► Consumers who binged on credit wind up on Russia's no-fly list

► "The growth rate in overdue debt has been huge"

Russians looking to find some warm weather this holiday season are running into some tricky roadblocks. In November the government imposed strict new bans on travel to Egypt and Turkey, two of the most popular vacation destinations for Russians, in response to the terrorist bombing of an airliner over Sinai and the shooting down of a military jet near the Turkish border with Syria. The government has also restricted the foreign travel of citizens with overdue loans and unpaid bills.

A record 1.4 million Russians have been grounded this year through September under a law that bans deadbeats from leaving the country, according to Russia's Federal Bailiff Service. About 600,000 are now on the no-fly list, says the agency, which enforces the ban. "The growth rate in overdue debt has been huge, up 40 per cent this year, and it will get worse before it gets better," says Elena Dokuchaeva, chairman of Sequoia Credit Consolidation, one of Russia's largest debt collection agencies, which is partially owned by **Goldman Sachs**.

A decade of high oil prices fuelled a consumption boom among Russia's middle class, as people splurged on pricey vacations, TVs, and cars, all on credit. From 2010 to 2014, Russia's consumer credit market grew at a double-digit rate, according to the country's biggest lender, **Sberbank**. Along the way, conspicuous consumption helped turn Moscow from a consumer backwater into a city with an iPhone ►

"Tactics can include calling at all hours of the day and night, approaching delinquent debtors via their relatives or workplace." —*Igor Kostikov, consumer debt activist*

◀ usage rate on par with New York's.

Russia's credit party began to wind down around 2013, as its economy slowed. Over the past year, the drop in oil prices and Western sanctions, imposed to punish Russia for its incursions into Ukraine, have combined to hammer both lenders and borrowers. The sanctions cut off Russian banks from foreign capital markets, causing them to tighten their lending standards, which has trickled down through the economy. "The economic crisis has made good-faith borrowers lose income or end up unemployed," says Oliver Hughes, chief executive officer of **Tinkoff Bank**, one of Russia's largest issuers of credit cards.

Now with the economy in recession, many Russian consumers are paying back loans with interest rates as high as 45 per cent, according to Sequoia. Last year, 1 in 8 Russian debtors had at least three outstanding loans, according to the National Bureau of Credit Histories.

Delinquency rates are soaring as double-digit inflation erodes Russians' disposable income. Desperate for cash, some Russians are turning to loosely regulated microfinance organisations that charge annual rates as high as 880 per cent.

The retrenchment is reflected in sales of everything from washing machines to international travel. Retail sales have plunged, with the October numbers showing the biggest drop in 20 years. Rising default rates have driven some banks to the edge. Vodka magnate Roustam Tariko, who in better times was known for flying in a private jet accompanied by Miss Russia, pushed bondholders in October to restructure \$550 million in debt to save his **Russian Standard Bank**, which focuses on consumer loans and credit cards.

It's a better deal

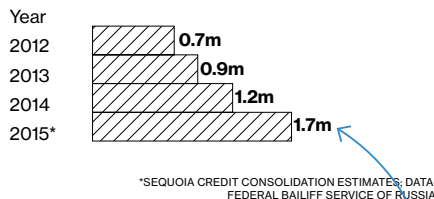
Quoted

"Smile and try to be positive (hopefully there will be less smog tomorrow)."

From the website of **China state broadcaster CCTV** on 8 December, when pollution levels in Beijing triggered a first-ever red alert, closing schools and businesses. Sales of face masks at one e-tailer almost doubled, reaching 200,000 that day.

Grounded

Number of Russians on the no-fly list at some point during the year



than some other consumer lenders got. Russia's central bank in November shut down Svzavnoy Bank, the lending arm

About 45 per cent are on the list over unpaid bank debts

of one of Russia's largest cell phone retailers, when it ran short of capital after aggressively expanding consumer loans before the crisis. Other banks are getting creative to keep the payments flowing. "We've hired a few people for our cloud call centre" from among customers who are behind on their loans, says Hughes of Tinkoff Bank.

Debtors are often confronted by collection agencies that some consumer activists accuse of resorting to aggressive measures. Igor Kostikov, chairman of Finpotrebsoyuz, a non-profit for consumers in debt, says "tactics can include calling at all hours of the day and night, approaching delinquent debtors via their relatives or workplace," verbal harassment, and threats of violence.

Russia's credit bureau says the number of people with three or more outstanding loans—a red flag for banks—has fallen 37 per cent since the start of the year. The bad news? There are still 3.1 million Russians in the category most at risk to fall into arrears, at which point they too could lose their right to leave the country.

—*Jake Rudnitsky and Anna Baraulina*

The bottom line Last year, 1 in 8 Russian debtors had three or more outstanding loans, some with interest rates as high as 45 per cent.

Housing

China's Millennials Are Happy to Share

► Co-living and co-working spaces are cropping up in big cities

► "Not a conformer to existing rules? We want you!"

Two decades ago, **Tyler Xiong's** parents—like many Chinese—were required to live in a commune, run by the state-owned enterprise they worked for. Today, Xiong, 28, is one of 500 people residing—willingly—in a co-living space called You+ near China's Silicon Valley, in the northern part of Beijing. For budding entrepreneurs, You+ provides shared facilities that include basic bedrooms and bathrooms, offices and workspaces, and amenities such as gyms and bars. Rents start at about \$300 a month for a shared bedroom and bath. Over the past three years, almost 5,000 people across the country have moved into You+ communities, concentrated in Beijing, Shanghai, and the southeast coastal city of Guangzhou.



Residents work, or nap, in a shared space at a You+ in Beijing

“Instead of working for years at a company to gain some capital, such a place allows young people to

experiment with their startup ideas at very low costs,” says Su Di, the 36-year-old You+ co-founder who lives with his wife in the same Beijing building as Xiong. The converted school

houses about 60 startups, including mobile game developers and video production companies. The You+ name is Su’s attempt to inspire the residents to look beyond their own ideas and ambitions. “There’s an element of brainpower sharing when people bounce ideas off of each other in a space like this,” says Xiong.

Because many young Chinese have been priced out of big cities, Su’s project helps them stay close to where their businesses will have a better chance of success. The first You+ location opened in 2012 in Guangzhou. “The coast is very different from the rest of the country,” says Tyler Cowen, an economics professor at George Mason University. “It has much better jobs, and that difference is only going to grow as China slows down.



of fundraising for You+. Having struggled to start his company, Lei wanted to help young entrepreneurs. Su says there will be almost 20 You+ locations up and running by early 2016, from 12 currently.

In a recent survey, Nielsen found that 94 per cent of Chinese are open to the concept of a sharing economy, compared with 43 per cent of North Americans. That acceptance has given rise to businesses such as **Didi Taxi**. Co-founded by former Alibaba employee Cheng Wei, it’s **Uber**’s largest local competitor and valued at about \$16.5 billion. **Tujia**, a Chinese version of Airbnb, joined the \$1 billion club in August. Sharing services for apparel, sports equipment, even pets, are popping up across the country. According to a report from PwC, the global sharing economy will

amount to \$35 billion by 2025, up from \$15 billion today.

People are going to do all kinds of things to adjust, so that’s where the sharing will happen.”

Lei Jun, the founder of smartphone giant **Xiaomi** and China’s seventh-richest man, was the lead investor in a 100 million-yuan (\$15.6 million) round

amount to \$35 billion by 2025, up from \$15 billion today.

Xiong owns two pairs of shoes and fewer than 10 outfits. He has no car and relies on Didi Taxi to get around. His attitude and that of many of his peers: Why buy when you can rent?

After working as a manager at gum maker Wrigley in Shanghai for two years, Xiong moved to Spain in 2013 to study economics. He returned to China last year and joined a bitcoin mining startup in Beijing that has generated about \$3 million of the currency. At You+, he shares a bedroom with three others. He sleeps on a single mattress laid on the concrete floor under a loft bed. Xiong says he prefers to plough his earnings back into the startup rather than spend the money on himself.

Married couples are welcome at You+, as are pets, but kids aren’t allowed because the lifestyle isn’t deemed conducive to raising a family. People over 45 are discouraged, but it’s not a hard-and-fast rule. Wealth isn’t a factor—the founder of a popular restaurant chain lives in Xiong’s building.

A bulletin board near the entrance is covered in pink and yellow Post-it notes from residents hoping to trade services—a back rub in exchange for a dog walk, for instance. “Seeking ▶



A courtyard at a Beijing You+, which is housed in a converted school

◀ idealistic coder with passion to change our world,” says one note. “Not a conformer to existing rules?” another says. “We want you!”

On the door of the common kitchen at the Beijing location is a notice with a QR code inviting residents to join a house committee via the messaging app WeChat. They discuss rules, shared costs, and how to divvy up cleaning duties. Sometimes conflicts arise. Noisy roommates are a common complaint, according to Su.

Xiong says what makes You+ different from the communes of his parents’ generation is respect for private property and the way technology enables residents to share. “I am a person of my times,” he says. “But this is also my choice.”

—*Bloomberg News*

The bottom line China’s sharing economy is growing quickly, as more young people spurn private ownership.

Commodities

A Giant Threat From Tiny Insects



▶ **Florida’s economy suffers along with dying orange trees**

▶ **“In Brazil... they don’t have the ‘bad neighbour effect’”**

Les Dunson, a 53-year-old orange farmer in Winter Haven, Florida, has seen his output fall to about 600,000 boxes of the fruit a year, down from 1 million a decade ago. The culprit? A “little monster,” as Dunson calls the psyllid, a tiny winged Asian insect that carries a deadly disease that has infected increasing numbers of citrus trees.

Last year’s harvest, which began on 1 October, was expected to shrink to 74 million cases, the lowest since 1964, according to the US Department of Agriculture. 2014’s crop

yielded 96.8 million. The blight has pushed up prices for frozen concentrated orange juice, raising costs for **Coca-Cola**, maker of Minute Maid orange juice, and **PepsiCo**, which sells Tropicana and Gatorade. The disease has led to more than \$7.8 billion in losses and the elimination of more than 7,500 jobs from 2006, soon after it was first found, through 2014, according to a University of Florida report. The Florida Department of Citrus says that by 2026 the harvest could be down to 27 million cases and calls the outlook for the industry “precarious.”

Officially called Huanglongbing, Chinese for “yellow dragon disease,” the condition is better known as citrus greening. Greening is caused by a bacterium, carried by the insect, which blocks nutrients from passing through a tree’s vascular system. Once a tree is infected, its leaves develop yellow veins or yellow-green mottling, or they lose their green colour altogether. The oranges, which remain partially green, have aborted seeds and a salty, bitter taste, and fall off prematurely. Infected trees are doomed as soon as their sap is contaminated, but symptoms can take several years to appear, says Michelle Cilia, an assistant professor at Cornell University affiliate Boyce Thompson Institute for Plant Research, who studies greening.

Some growers apply nutrients directly to leaves to keep trees productive even as they’re dying. Others are using pesticides, although too much can burn the fruit. The psyllids have also developed resistance to certain chemicals. Dunson, who runs **Dunson Harvesting**, which his grandfather started in the 1950s, says pesticides and nutrients haven’t made a big difference.

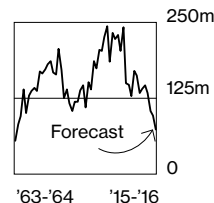
The disease is also killing crops in Brazil, the world’s top orange grower. According to Fundecitrus, a research foundation funded by farmers and processing companies, the share of trees in Brazil infected by greening increased 159 per cent from 2012 to 2015. About 35 million plants are infected, or about 18 per cent of Brazil’s citrus trees.

But Brazilian farmers have been more successful at containing the disease because of the size of their

operations. Bigger growers can maintain a 100-metre border strip between farms to contain infected areas. “In Brazil, because they can control at such a large scale, they don’t have the ‘bad neighbour’ effect,” says Robert Shatters Jr., a research molecular biologist for the USDA’s Horticultural Research

Florida orange production

Number of boxes



Laboratory in Fort Pierce, Florida. The Brazilians also use intense monitoring and spraying to create a protective wall. Some of the country’s farms have been able to contain the infection, and crops have been restored

in areas once devastated by the disease.

Ibiapaba Netto, executive director of industry group CitrusBR in São Paulo, says Brazil and the US have taken different approaches to the problem. Florida has spent most of its research dollars on finding a cure for greening. Brazilian producers instead have concentrated on preventing the disease from spreading by eliminating sick trees and killing the insects. “Producers are getting more efficient in fighting it,” Netto says. Adds Shatters: “They’re able to impose strict rules about removing infected trees, which they were able to apply with more clout, and they all abide by that.”

Finding a permanent solution is difficult because the bacterium that causes the disease can’t be bred outside citrus groves, Shatters says. Still, scientists say that in the short term, more can be done to try to contain the damage and prolong a tree’s productivity. Some Florida farmers are trying thermotherapy: encasing tree canopies in plastic tents to raise the temperature, which slows the spread of the bacteria and keeps trees healthy longer. That “will provide a window of opportunity for the growers to remain productive while more midterm and long-term solutions come down the road,” he says.

—*Marvin Perez, with Gerson Freitas Jr.*

The bottom line Florida’s orange harvests could drop by almost 64 per cent over the next decade if a tree-killing disease isn’t controlled.



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1 — 15 January, 2016

Saudi Aramco Looks Back For The Future

At the heart of Korea's Onsan refinery lies a street called A.I. Naimi Road, an homage to Saudi Arabia's oil minister. State-owned **Saudi Arabian Oil Company** holds a 65 per cent stake in the complex. The investment in Korea's third-largest refinery highlights the changes in the oil business as prices have plunged by more than half over the past two years. Saudi Arabia and other oil-rich countries are fighting to lock in customers for their crude, and Asia—which accounts for 70 per cent of Saudi oil exports—is the primary battleground.

For Saudi Aramco, as the company is widely known, that means purchasing stakes in refineries, with contracts that include clauses guaranteeing most of the oil the facilities process will come from the kingdom. Aramco has invested in three processing facilities in Asia and is on the cusp of a dramatic increase in its commitments to the region, in countries from Indonesia to Vietnam. Owning refineries "in Asia is part of a long-term strategy to consolidate" the Saudi market share in a key region, says Mustafa Ansari, an analyst at Arab Petroleum Investments, a state-controlled development bank in Dammam, the city at the heart of Saudi oil country.

The Saudis pursued a similar path in the US three decades ago to ensure sales as crude prices tumbled, buying into three oil-processing plants in Texas and Louisiana. The strategy worked: Saudi Arabia is the primary source of crude for **Motiva Enterprises**, the US refiner half-owned by Aramco. This year through August, Motiva imported 65 million barrels of Saudi oil.

Selling more oil is critical to the fortunes of the kingdom. The crash in oil prices is forcing the Saudi government to cut its spending. The International Monetary Fund predicts a budget deficit exceeding 20 per cent of the nation's economy this year. Saudi Arabia's new leader, King Salman, is at the same time pursuing a more aggressive foreign policy that includes major arms purchases and waging a costly war against Yemeni rebels.

At Aramco, recently appointed Chief Executive Officer Amin Nasser is

► Building refineries in Asia echoes its US strategy from the 1980s

► "We're optimistic that we will...expand our cooperation"



overseeing a plan to make the world's biggest oil company a more integrated operation. Long focused on producing crude, Aramco plans to almost double its refining capacity by 2025, to 10 million barrels a day—equivalent to its current oil production and enough to put Aramco ahead of ExxonMobil as the world's largest refiner.

The Saudis aren't alone in seeking new customers in Asia. Kuwait is scheduled to open a refinery in Vietnam that's contracted to get more than 90 per cent of its crude from the emirate. Iran and Qatar have floated the idea of investing in the region.

They've got catching up to do. In 2004, Aramco bought 15 per cent of a Japanese refinery with a capacity of 395,000 barrels a day, and in 2007 it paid \$1.3 billion for a quarter of a refinery in Quanzhou, China, with a capacity of 240,000 barrels.

"The biggest problem for Saudi Aramco is that fuel markets in several key Asian countries aren't liberalised," with governments often requiring refiners to sell petrol and other fuels at subsidised prices—or even at a loss—to keep inflation in check, says Bassam Fattouh, director of the Oxford Institute for Energy Studies.

Aramco wants the right to sell what it refines at market prices, but the Chinese are reluctant to let market forces determine the price at the pump, according to people familiar with the situation who asked not to be identified because they aren't authorised to speak publicly. Although China has taken steps to free up prices, it's still tough for refiners to make a profit selling petrol

Onsan refinery



and diesel in the country. The market's also getting crowded. Russia this year topped the Saudis as China's biggest supplier of crude, and Iraq and Angola are making inroads.

In Indonesia, the Saudis have a preliminary agreement to invest in a refinery with a capacity of 370,000 barrels a day in central Java, and they plan to upgrade two other facilities with **Pertamina**, the Indonesian state-controlled oil company. Aramco will own half of the Java plant, which will primarily use Saudi crude, according to Indonesian Energy Minister Sudirman Said. "We're optimistic," he says, "that we will start our cooperation with our first refinery and expand our cooperation." —*Javier Blas and Wael Mahdi, with Nayla Razzouk*

The bottom line With oil prices plunging, Aramco is trying to lock in customers by building refineries in Asia, as it did in the US three decades ago.

Commodities

Egypt's Pigeons Feast on Wheat Storage Woes

► **Wasted grain a major problem for the country**

► **Extremism is "catalysed by a lack of... food security"**

You can tell an Egyptian grain store by the birds circling overhead. As much as half of the wheat the state buys from its farmers is lost each year to pigeons, rodents and thieves scavenging national stockpiles that are often just stacked in rough jute bags open to the elements, says David Blumberg, whose US company is working with the government to modernise and build the Middle East's largest grain-storage network. "If you ever passed by a landfill and saw all the birds circling above, that's kind of the situation," says Blumberg, chief executive officer of **Blumberg Grain**, Middle East & Africa, referring to the facilities he's working on replacing. "There is no protective covering."

Wasted grain is a big problem for Egypt, where rising food prices intensified unrest that led to the overthrow of the government during Arab Spring protests in 2011. The country is the world's biggest wheat importer and spends billions of dollars on grain each year for a subsidised bread programme to ensure its people can afford food. The government buys about 40 per cent of the country's wheat production each year, but waste isn't limited to the domestic crop. Poor infrastructure, port backlogs and ageing storage sites mean a third of imported supply is also lost, says Gilles Mettetal, director of agribusiness at the European Bank for Reconstruction and Development.

Any improvements that may cut imports may have consequences for the global wheat market, which is contending with the largest stockpiles in almost three decades. Bumper harvests around the world have pushed benchmark prices in Chicago to near the lowest since 2010. Futures traded at \$4.83 a bushel on 16 December, 22 per cent lower than the same time in 2014. The Egyptian government was expected to spend \$1.3 billion in 2015 buying wheat from local farmers, according to the United Nations' Food & Agriculture Organization. Since June, it paid more than \$560 million to import wheat, mostly from the Black Sea region and France, Bloomberg calculations show.

The Blumberg project will initially see 93 steel sheds, each able to hold 8,000 metric tonnes of grain, ready within five months. The country eventually wants to build almost 300 warehouses storing 2.35 million tonnes of locally grown grain, says Blumberg. The sites will clean, weigh, bag and monitor grain from warehouse ►

"Extremist ideologies, uprisings and movements are almost always catalysed by a lack of economic opportunity and food security."

—David Blumberg, CEO, Blumberg Grain, Middle East & Africa



Against the Grain

11.5 Wheat import forecast for Egypt, July 2015 – June 2016
MMT*

8.8 Wheat production forecast for Egypt, July 2015 – June 2016
MMT*

DATA: (USDA)
*MILLION METRIC TONNES

◀ to flour miller. If anything goes missing, the operators will know.

Egypt is taking other steps to boost the efficiency of its subsidised food programmes, which in the past made bread so cheap that some people fed it to livestock. The country started a smart-card system in 2014 that pays bakeries for each loaf they sell instead of providing them directly with subsidised flour, which was often resold on the black market. The government is also planning a \$1.7 billion silo project at the Port of Damietta for imported wheat with storage capacity of 7.5 million tonnes. While improving the situation, the government should make it easier for private firms to develop and own their own facilities, the EBRD's Mettetal says.

Medsofts is a private trader doing just that, following a \$20 million loan from the EBRD to operate silos along the Nile River. The company transports grain by barge to bypass inefficient unloading operations at the Port of Alexandria, Mettetal says. The EBRD wants to fund other such projects. "We have been approached by large grain-trading companies, among the top ones, and all are keen to invest in building their own facilities," Mettetal says. Anything that reduces wastage could curb Egyptian imports or more easily allow it to meet rising demand for feed grains in the long term, he says.

Egyptian wheat imports have risen about 5 per cent on average each year over the past decade, compared with a 3 per cent annual increase in consumption, USDA data show.

Imports surged in 2009 following the spike in food prices the previous year. Waste isn't a problem only in Egypt—the UN's FAO estimates that a third of all food globally is lost before it reaches consumers' dinner tables. At least 10

Arab nations sought to expand storage capacity following food-price spikes in 2008, the World Bank estimated in 2012, and some of those plans are now coming to fruition. Saudi Arabia, the largest barley importer, was expected to increase public storage capacity by a quarter by 2015-end, according to the US Department of Agriculture's Foreign Agricultural Service. Some private companies have announced expansion projects in the region as well.

Political unrest and war have derailed some plans, says Abdolreza Abbassian, a senior economist at the UN's FAO in Rome. Syria used to have one the biggest storage capacities relative to demand in the Middle East. By January, the government had lost control of more than half its large-silo storage capacity and a greater share of smaller depots had been seized or damaged, the UN reported.

Such conflicts give even greater reason for ending the inefficiencies bedeviling food systems in the Middle East and North Africa. "Extremist ideologies, uprisings and movements are almost always catalysed by a lack of economic opportunity and food security," Blumberg says. "The second you don't have food to eat, you're susceptible to whatever nonsense is thrown at you." —*Whitney McFerron*

The bottom line The world's largest wheat importer is losing significant quantities of grain to human and avian thieves.

"Going to the mall is part of people's entertainment and owners of popular modern malls have the ability to charge premium rents."
—*Ramzi Darwish, consultant with Cluttons*

that continues apace even as oil, the kingdom's dominant source of revenue, slumps. Foreign and domestic companies are betting shopping demand will rise for years, bolstered by one of

the world's youngest populations and modern retail space that's only a fraction of that in the US on a per capita basis.

Riyadh is expected to add 565,000 square metres (6.1 million square feet) of gross leasable area through 2017, while the coastal city of Jeddah is set to complete 383,000 square metres, according to broker Jones Lang LaSalle. **Arabian Centres Company**, the kingdom's largest mall owner, plans 19 new shopping centres in the next five years to add to the 17 it already has, according to chief executive officer Simon Wilcock.

In Saudi Arabia, there's 30 centimetres of retail space per person and many smaller cities have no modern malls. China has 1.1 square-metres of gross leasable area per capita, while the US has 3 square metres, according to the Middle East Council of Shopping Centres. "The market is nowhere near saturation even though there is an awful lot of development," says Richard Morley-Kirk, country manager for Dubai's **Al Futtaim Group**, which also plans to build a mall in Riyadh. "Do I think there will

Retail

Saudi Shoppers Just Can't Get Enough Malls

► Retail sector remains strong despite the oil price slump

► "The market is nowhere near saturation"

The highway that cuts through the middle of Riyadh, the Saudi Arabian capital, takes drivers past two shopping malls and another one under construction, each rising up soon after the last fades in the rear view mirror. The outlets are emblematic of a retail building boom in Saudi Arabia



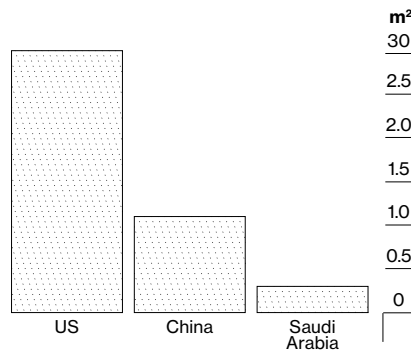
Arabian Centres' Najd Mall, expected to open in 2017, will have 57,000 square metres of gross leasable area

be growth next year? Absolutely.”

Average monthly retail sales are up 15 per cent this year even as the price of oil, which accounts for about 80 per cent of the Saudi budget, fell by more than a third. At least half of all retail space is still made of outdated street shops or traditional markets known as souks which can be unbearable for shoppers during the summer heat, according to the shopping centres council. “Retail is the only sector that’s strong and will remain strong in Saudi Arabia right now,” says Ramzi Darwish, a consultant with Cluttons. “Going to the mall is part of people’s entertainment and owners of popular modern malls have the ability to charge premium rents.”

Arabian Centres plans an initial public offering next year, according to Muhanad Awad, CEO of FAS Capital, the financial and investment arm of the company’s parent **Fawaz Alhokair Group**. Another developer, **Raj Real Estate**, is planning to start building a 137,000 square-metre open air mall called Riyadh Walk. Mall owners from neighbouring countries are also taking part. Majid Al Futtaim, which built an indoor ski slope in one of its Dubai malls, won approval for a 10.5 billion riyal (\$2.8 billion) shopping centre in Riyadh. Another mall owner, **Al Futtaim Group**, is planning to start construction of one of the kingdom’s largest centres next year with Ikea as an anchor tenant. Kuwait’s **Alshaya**,

Retail space per person



DATA: MIDDLE EAST COUNCIL OF SHOPPING CENTRES

which distributes dozens of brands such as H&M and Victoria’s Secret across the Middle East, also plans a 6.5 billion-riyal mall in the capital. “While the drop in oil price is something to be considered, we have many other factors that encourage us to steam ahead with the project,” says Raj Real Estate CEO Walid Al Haza. He cites new regulations set to encourage home building and the success of malls that mix entertainment and shopping.

Saudi Arabia has a greater need for modern space with amenities like air conditioning. With temperatures that can soar to 53 degrees Celsius (127 degrees Fahrenheit) in the summer, many families turn to malls for a place to stroll in air-conditioned space where children can also play in indoor playgrounds. “Malls in Saudi play the roles of piazzas or town squares, not just places to shop,” says Jamil Ghaznawi, head of Saudi Arabia for Jones Lang. “Now more malls are being built with a much bigger focus on restaurants, cafes, playgrounds and children’s entertainment.”

Still, while most mall projects are moving ahead, Clutton’s Darwish says he knows of at least one foreign investor who is putting a planned shopping development on hold. A sustained period of low oil prices could lead to government cuts that would hit spending power in a country where about two thirds of people work for the state. The Tadawul All Share Retail Industries Index, a measure containing 15 companies on Saudi Arabia’s stock market, dropped about 20 per cent last year. It surged 33 per cent last year and 56 per cent in 2013.

Mall owners see the oil-price decline

and a slowdown in government spending as opportunity to expand. A reduction in state projects leads to reduced costs for construction materials and labour, says David Macadam, CEO of the shopping centres council. “Many of the prime pieces of land for new shopping centres have been owned for years” by wealthy trading families who are able to fund construction from revenue generated by their successful businesses, he says.

In Riyadh, the largest city, rents for super regional malls and community shopping centres climbed 3 per cent and 1 per cent respectively in the third quarter from a year earlier, according to a JLL report. Vacancy rates have dropped to 8 per cent from 11 per cent, the Chicago-based broker says, while estimating rents will rise further. In Jeddah, rents at regional malls surged 6.7 per cent in the past year. The kingdom’s second-largest city and the entry point for around 10 million pilgrims and religious visitors each year is seeing vacancy rates climb as tenants move to newer malls, JLL says. Large malls in the city command an annual rent of 3,300 riyals (\$879) per square metre, while it’s about 2,900 riyals in the capital.

To lock in reasonable rental rates at new malls, tenants must sign leases three years before their completion. Once malls are open, the competition for the remaining space tends to be fierce, Morley-Kirk says. “Developers are looking 10 and 20 years down the line,” says Andrew Williamson, head of retail at JLL in the Middle East and North Africa. “They may slow construction if the economy turns but they won’t stop because demand is very high.”

Online shopping is also lower in the Middle East than in the US, with such purchases accounting for less than 4 per cent of sales in the region, compared with about 11 per cent in the US, according to Macadam, who says figures for Saudi Arabia are probably lower. “People like to touch, feel and try the stuff they buy here. It makes the mall experience indispensable,” he says. —Zainab Fattah

The bottom line Saudi Arabia’s two largest cities will add almost 1 million square metres of mall space through 2017.



1 — 15 January, 2016

Odeh says he shares
Martin Luther King
Jr.'s goals

Keeping the Dream Alive

► Ayman Odeh takes inspiration from Martin Luther King Jr. as he tackles Arab-Israeli politics

► “You can’t just manage the situation when there’s no hope”

Ayman Odeh, who has helped turn Israel’s marginalised Arab politicians into the third-biggest force in parliament, prepared for his next campaign by going to the church where Martin Luther King Jr. once preached. With his native land suffering through a spasm of violence, Odeh visited the US last month seeking political support in Washington and New York, and spiritual nourishment in Atlanta. On 6 December, he attended services at Ebenezer Baptist Church where King and his father were pastors. He says he shares King’s goals: dialogue and civil rights. “Even with all the difficulties,

my dream is to strengthen the national conversation between citizens in the state of Israel—Arabs and Jews together,” he says in an interview in Jerusalem. Odeh presents himself as a new brand of Arab-Israeli politician, seeking to build equality rather than denigrate Israel. He speaks of fighting discrimination and building alliances, downplaying national security and foreign relations that accentuate the Arab-Jewish divide.

Without prospects for a resumption in negotiations between Israeli Prime Minister Benjamin Netanyahu and Palestinian President Mahmoud Abbas, Odeh says the solution must come from within, from Israeli voters—both Arabs and Jews. Since Arabs make up 20 per cent of the population, he says, all he





needs is another 30 per cent to create change. "There is no democracy with discrimination and those who want Israel to be a true democracy have to work for equality for the Arab minority in Israel," Odeh says in an interview in New York. "When we struggle for equality and rights, this is a struggle for democracy. This is a struggle for the common interest of all people."

Odeh says he was visiting the US, which he called "the most important place in the world," partly to appeal to US Jews and their influence on Israeli public opinion as well as to explain the plight of Israeli Arabs. "The Jewish American community has such a high moral standing," Odeh says. "They were the biggest supporters of the African-American civil rights movement." Then, citing a line from the Jewish liturgy, he says, "Justice, justice you shall pursue."

During his earlier interview in Jerusalem, his spartan office decorated only with a framed photo of his three children and one of King, he says, "We, the Arabs inside Israel, are the only ones who see both sides. When Palestinians cry for their children, the Jews don't see it at all. When the Jews are attacked, the Palestinians don't see it." And while that kind of empathy plays well with many, especially abroad, so far Odeh has done little to live up to his words. This is partly because he is trying to hold together widely disparate parties, partly because the Israeli government is run by the hawkish Likud party of Netanyahu and partly because the recent violence has driven the two communities further apart.

"It was an impressive feat for him to bring all the Arab parties together into one faction, but that's about as far as it can go in current circumstances," observes Shmuel Sandler, a political scientist at Bar Ilan University outside Tel Aviv. "It's hard enough for him to keep the Communists and the Islamists together. If he is seen as compromising with Likud, it's going to tear his party apart."

Arab Israelis also call themselves Palestinian citizens of Israel. Unlike the 4.5 million Palestinians who live

in the West Bank, Gaza Strip and east Jerusalem—which Israel captured in the 1967 Middle East war—they are considered legal equals to the Jewish majority, although economic and social gaps are substantial and discrimination is common. Israeli President Reuven Rivlin called attention to that gulf as he began a trip to the US last month that included a White House meeting with President Barack Obama. Writing in the *Washington Post*, Rivlin said Israel needs to improve services both to Arab citizens and the Palestinians, while also proposing an educational plan that would enable most Jews in Israel to speak Arabic. "We are duty bound to recognise where and how we can take effective action to improve the prospect that we will be able to live together, Jews and Arabs, in our region as we are destined rather than doomed to do," Rivlin wrote.

As a young man, Odeh says, he idolised Malcolm X, the radical US black activist of the 1960s, but as he grew

more mature he came to adopt the outlook of King, who sought reconciliation and equality through non-violence. Maintaining that outlook has become difficult amid the wave of Palestinian knife attacks in recent months. Scores of Israelis and

Palestinians have been killed and hurt, polarising political debate. Odeh, who has neither condemned nor supported the violence, has therefore become a lightning rod for criticism. Israelis complain that he doesn't speak out against the bloodshed while Palestinians accuse him of being too conciliatory.

An October television appearance from Nazareth, Israel's biggest Arab city, illustrated still another complaint Odeh faces within his own constituency—that he has become bad for business. As he was being interviewed live on the city's main street, Nazareth Mayor Ali Salem drove alongside and berated him on live TV. Salem accused the young politician of organising anti-government demonstrations that drew thousands and chased tourists and shoppers from the city, a magnet for Christian pilgrims. Odeh didn't

"You can't just manage the situation when there's no hope. Eventually it's going to explode"

—Ayman Odeh

respond on television and dismisses Salem as part of the old guard in Israeli Arab politics.

Odeh, named to Foreign Policy's 2015 list of 100 Leading Global Thinkers, went to Washington to join a forum organised by the magazine. He met officials from the White House, State Department and Congress, along with American leaders of the Palestinian and Jewish communities. On Middle East peace, he blames Netanyahu and Abbas for giving up hope. "People see no horizon for peace," says Odeh, chairman of the Joint Arab List in the Israeli parliament. "You can't just manage the situation when there's no hope. Eventually it's going to explode."

While emphatically opposing violence in general, Odeh says he won't condemn the West Bank Palestinians for "fighting for their legitimate rights and against the occupation. I can't live in Haifa, in the beautiful Carmel mountains, and tell the Palestinians how to conduct their struggle."

—Jonathan Ferziger

The bottom line A leader among Israel's Arab minority, Ayman Odeh is casting his civil rights struggle as similar to Martin Luther King's.

Energy

OPEC's Next Headache? Choosing a Leader

► **The group has to replace secretary general Abdalla El-Badri**

► **A replacement "will be elected" in July when his term expires**

Deciding how much crude to pump isn't the only dispute splitting the Organization of Petroleum Exporting Countries. The group is also fighting over who will be its next top official. As it became clear last month in Vienna that a push for oil production cuts was failing, ministers from Venezuela, Algeria, Iran and Ecuador huddled around OPEC's conference table and tried a different tack in their quest to boost crude prices. It was time, they ►

◀ argued, to find a new secretary-general to replace Abdalla El-Badri, according to three delegates who asked not to be identified because the discussions were private. The four countries want to pick someone who will press their case that OPEC's biggest members should cut production, the delegates said.

The dispute over the secretary-general position reflects the clash within OPEC over whether to keep pumping to pressure rivals including US shale producers, a strategy that has driven oil prices to six-year lows. Richer members led by Saudi Arabia prevailed again at the 4 December meeting as the group endorsed current production levels. However, the four price hawks succeeded in limiting El-Badri's tenure to an additional seven months, hoping to appoint a replacement at the next meeting in June. "El-Badri can take a balanced view" about OPEC's objectives, rather than exclusively favouring higher oil prices, says John Hall, chairman of consultant Alfa Energy. "That can go against him as far as the hawks are concerned."

OPEC surprised markets by effectively abandoning its 30 million-barrel-a-day output target last month and endorsing current production of about 31.5 million, pushing prices to the lowest level since the financial crisis in 2009. Yet the group actually spent just as much time in Vienna discussing the secretary-general, who oversees meetings and serves as the organisation's public face, two delegates said. El-Badri declined to comment on the matter.

Quoted

"I think any Muslim or Arab who believes in his dignity should not associate with Mr Trump, because he insulted our book, he insulted Islam, he insulted Muslims."

Emirati businessman **Khalaf Al Habtoor**, speaking on 9 December after Republican presidential candidate Donald Trump made more comments perceived by some to be anti-Muslim.



Oil under El-Badri

\$55.97

on becoming secretary-general (1 January 2007)



The 75-year-old native of Libya has steered the organisation for nine years, making him its longest-serving top official. In addition to serving two terms of three years each—the maximum allowed in OPEC's statute—his tenure has been extended by three years to give the group extra time to choose his replacement.

El-Badri oversaw a deal to make record production cuts that helped halt a price slump during the financial crisis of 2008 and 2009. When an OPEC meeting ended in acrimony in June 2011 amid disagreements over whether to increase production quotas, El-Badri helped reconcile differences between members. Six months later the group agreed a new 30 million-barrel target that proved to be its most enduring.

The organisation has been extending El-Badri's tenure since 2012 as political rivalries between Saudi Arabia, Iran and Iraq prevented them from settling on candidates each of the nations had proposed. The disagreement over choosing a successor flared again at the 4 December meeting as the slump in oil prices heightened tensions over the direction of OPEC policy.

In his role as OPEC's principal

DATA: OPEC BASKET PRICE

\$30.74

lowest point (21 December 2015)

\$140.73

highest point (3 July 2008)

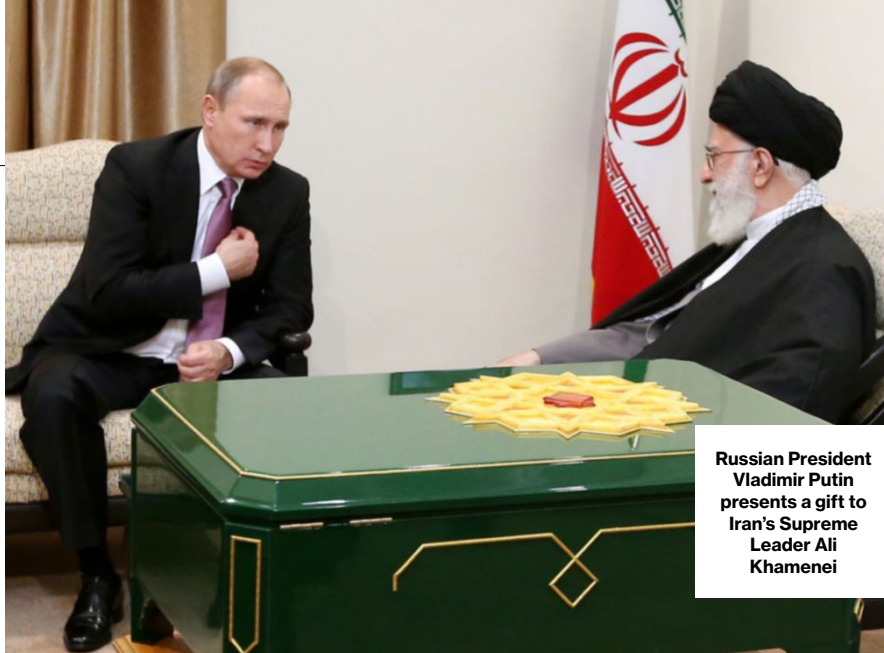
representative to the public, El-Badri has defended the group's current strategy, saying in November that global markets will rebalance next year as supplies outside the group slow in response to lower prices. He has also supported the idea that OPEC could cooperate with nations outside the group on cuts to reduce the oversupply, a position supported by both Saudi Arabia and Venezuela.

El-Badri played an important role in the intense discussions inside OPEC's Vienna headquarters on 4 December, presenting outlooks for the oil market that represented different output levels favoured by the two opposing camps, one delegate said. When the issue of his own future came up, he left the room to let ministers discuss the matter in private, according to two delegates. Among the proposals discussed were changing OPEC's selection process to broaden the pool of candidates. The potential for Indonesia, returning to the group after a seven-year absence, to put forward a neutral candidate acceptable to all members could also be a solution. The Asian country has said it has yet to nominate anyone.

With no new names proposed, ministers compromised by extending El-Badri's tenure once again, but Venezuela, Algeria, Iran and Ecuador insisted he be designated acting secretary-general. Unlike the previous extension to El-Badri's term in November 2014, the statement last week specified that his term will expire in July when a replacement "will be elected."

OPEC's production rose to the highest in more than three years in November, climbing 230,100 barrels a day to 31.695 million a day, according to a monthly report published on 10 December by its secretariat. Even if the price hawks do secure a new secretary-general, it's unlikely to help them reverse the direction of the group's policy, according to Alfa Energy's Hall. The role is more about representing the organisation, while strategy will continue to be shaped by OPEC's most powerful member, Saudi Arabia, he says. —Grant Smith, Wael Mahdi and Angelina Rascouet

The bottom line Political rivalries have prevented OPEC from replacing Abdalla El-Badri as the organisation's secretary-general.



Russian President Vladimir Putin presents a gift to Iran's Supreme Leader Ali Khamenei

Foreign Relations

Iran and Russia Face a Test of Friendship

► Diverging interests could see the allies begin to drift apart

► “Russia doesn’t stab its allies in the back”

With their militaries fighting side-by-side in Syria, the leaders of Iran and Russia gathered in Tehran to lavish praise on each other and unwrap gifts. Vladimir Putin came bearing a \$5 billion loan and a replica of an ancient handwritten Koran. Iran’s supreme leader, Ali Khamenei, spoke approvingly of Russia’s military intervention and darkly of a US plot to dominate “the whole region,” starting with Syria. Both want to build on ties that strengthened as Russia backed Iran during two years of tough nuclear negotiations with world powers.

Yet Russia’s economic plight and Iran’s strategic ambitions in the Middle East impose limits on the relationship. After the Arab Spring, Russia found itself with only two allies in the region that it could rely on—Syria and Iran, according to Nikolay Kozhanov, a non-resident scholar at the Carnegie Moscow Center. “Losing influence in the Middle East is a great concern for Russia, especially if Iran shifts toward the West.”

That’s something that also concerns Khamenei, says Reza Haghighatnejad, an Iranian analyst based in Istanbul. The 76-year-old ayatollah, who along with a powerful conservative faction

in parliament opposes a broader rapprochement with the US, is seeking “to use a strategic friendship with Russia to disrupt” President Hassan Rouhani’s efforts to reach out to the West following the nuclear deal, he says.

Having delivered on his 2013 election pledge to end Iran’s pariah status, Rouhani, who played a minor role during Putin’s trip to Tehran, needs technology and cash to rebuild an economy sapped of oil revenue and investment. Neither is likely to be found in Russia, with its economy in recession and prices plunging for its main export, oil. Nor can Iran depend on Moscow to uphold its interests elsewhere in the region, says Mark Katz, a professor of government and politics at George Mason University in Fairfax, Virginia. “Russia is friendly with Israel and has made it clear it wants to be friends” with Sunni Gulf states who oppose Shiite power Iran, he says.

And in Syria, agendas may be diverging. Putin and Khamenei put forward a united front on ways to end a conflict that’s killed a quarter of a million Syrians. But on the biggest obstacle to a peace deal—the future of President Bashar al-Assad—statements signal growing differences. After talks on Syria’s future in Paris in November, Russian Foreign Minister Sergei Lavrov said it was up to the Syrian people to “decide Assad’s fate,” adding that he wasn’t saying “that Assad has to go or that Assad has to stay.”

Syria’s opposition, as well as leading supporters including the US and Turkey, insist Assad must go for Syria to have a chance of peace. Several countries have, though, signalled he could stay for a transitional period on which they haven’t put

a time period. Putin reassured Khamenei that “Russia doesn’t stab its allies in the back.” That hasn’t stopped speculation that he envisages a future Moscow-backed administration in Syria free of Assad and his inner circle. Such talk is sure to upset those in Iran who remain wedded to the Syrian leader as guarantor of the nation’s interests. “Our northern friend that has now come to Syria’s aid offering military help is pursuing its own interests,” General Mohammad Ali Jafari, head of Iran’s Revolutionary Guards, said in November. Russia “may not share our interest in keeping Assad in power,” he said.

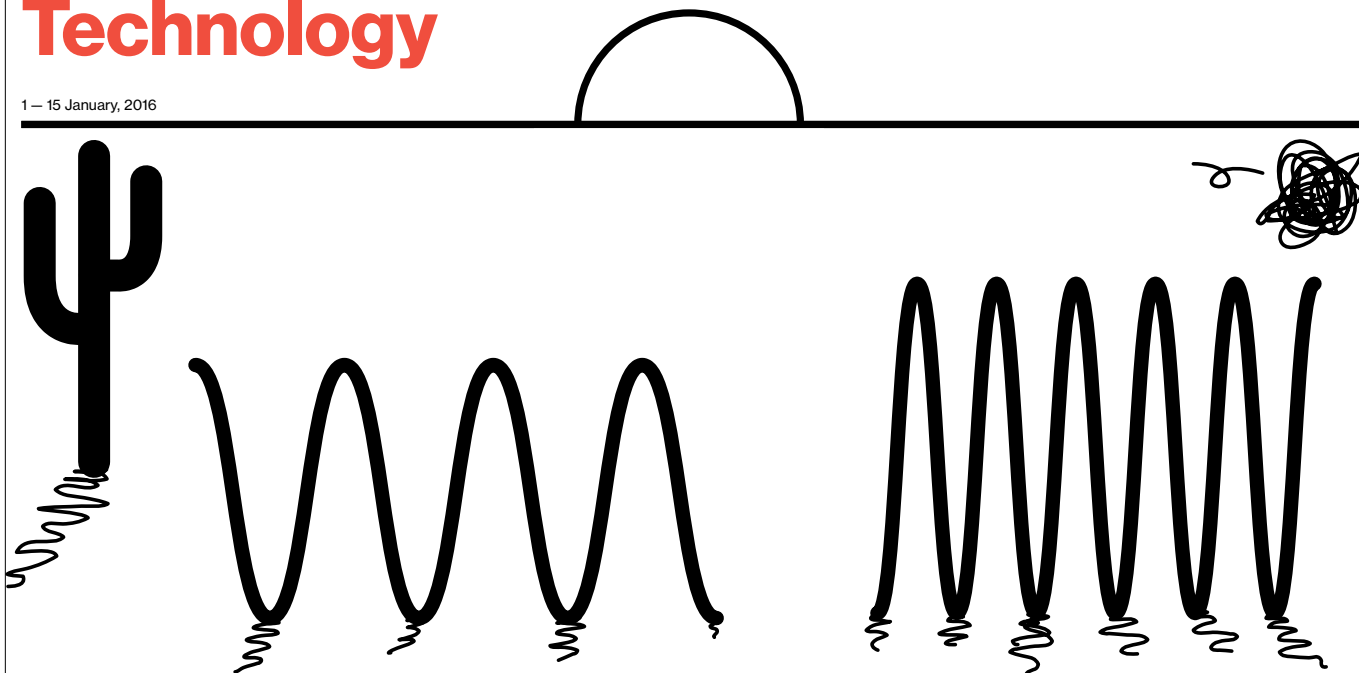
The commander of the Guards’ Quds Force, Qassem Soleimani, was in Moscow last month for talks with Putin on a handful of Mideast conflicts, Iran’s Fars news agency reported. After attending a session in October, Iranian officials were again present when leading diplomats assembled in New York on 18 November to continue talks on military strategy in Syria and how to pursue efforts for a cease-fire and negotiated power-sharing administration.

Assad is an Alawite, a sect that split off from Shiite Islam, and is a key ally in Iran’s tussle for supremacy with Middle East rival Saudi Arabia, which is attempting to rally Sunni nations into a more coherent bloc. Iran’s ruling clerics finance and arm the Lebanon-based Hezbollah movement in its fight with Israel through Damascus, according to US Congressional reports. Several Iranian commanders and scores of Hezbollah fighters have reportedly been killed fighting alongside Assad’s forces.

Syria’s war encapsulates the uses and limits of Iran’s ties with Russia, says Afshon Ostovar, a senior analyst at the Center for Naval Analyses in Arlington, Virginia. “Tehran is most concerned that Russia could overtake Iran as the dominant outside political influence in Damascus,” he says. “But there is enough overlap of Iranian and Russian interests that Tehran probably isn’t worried about being sold out at the negotiation table. At least not yet.”

—Kambiz Foroohar

The bottom line Iran can’t depend on Russia for political and economic support as it aims to strengthen its position after July’s nuclear deal.



‘These airwaves ain’t big enough for the both of us’

► Google, Microsoft, and Comcast are fighting a Verizon-led push into unlicensed spectrum

► “The people who have looked at it very carefully are very concerned”

US wireless carriers send your e-mails and Instagram likes across specific slices of the electromagnetic spectrum: the ones they’re licensing from the government for billions of dollars. But there’s an unlicensed range, and **Verizon** is leading carriers in a push to equip phones with chips that will let them make use of these free airwaves. The company says doing so will help clear cellular congestion and keep the Internet working at top speed as data use climbs ever higher. “Unlicensed spectrum is going to be an important part of providing a better mobile broadband experience for our customers,” says David Young, Verizon’s vice president for public policy.

That sounds great, say **Google**, **Microsoft**, **Comcast**, and others, except for one thing. The proposed system, called LTE in Unlicensed Spectrum or LTE-U, which relies on a combination of new, small cell towers and home wireless routers, risks disrupting the existing Wi-Fi access most

people enjoy. For several months, the three companies have been among a group lobbying the Federal Communications Commission to delay LTE-U’s adoption pending further tests. All three declined to comment for this story, referring instead to a 23 October FCC filing they joined that claims LTE-U “has avoided the long-proven standards-setting process and would substantially degrade consumer Wi-Fi service across the country.”

Both sides say they have research backing their assertions about LTE-U; it’s either effective and foolproof or an impending disaster, depending. Both camps are also criticising the other’s methodology and assumptions, and it’s tough to find an expert who doesn’t have a stake in this argument. So far, the FCC says it intends to let the companies work things out among themselves, though agency spokesman Neil Grace says his bosses are “closely monitoring” the debate.

In decades past, unlicensed

airwaves were mostly known for their use by garage door openers, cordless phones, and the occasional baby monitor. Now they’re full of traffic—Wi-Fi networks that connect smartphones, laptops, set-top boxes, game consoles, and a whole host of smart devices to the Internet. Those gadgets and the traffic they carry, an essential part of how Google, Microsoft, and Comcast make money, pump about \$222 billion into the US economy every year, estimates industry lobbyist Wi-FiForward.

Verizon and other wireless carriers run central scheduling software that tells each phone when to transmit on a particular bandwidth, like air traffic control for phone signals. Wi-Fi networks typically rely more on a kind of listen-before-talking system, with each device checking a desired slice of spectrum to make sure it’s available.

“Wi-Fi has this inherent politeness,” says Rob Alderfer, vice president for technology policy at researcher



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Jeff Bezos:
Rocketman 26

Up-and-coming African
game designers gather
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CableLabs, which is funded by cable companies. LTE-U “can essentially take over,” he says, crowding out Wi-Fi signals. Cable industry lobbyist Wi-Fi Alliance says LTE-U should undergo a lengthy approval process to make sure it won’t disturb existing networks.

Verizon and other carriers say delay is pointless—as does **Qualcomm**, which makes the chips that enable LTE-U. “We have a capability that we’ve proven can coexist, and we’re ready to go with it,” says Matt Grob, Qualcomm’s chief technology officer. “We don’t want to wait. Our partners, they don’t want to wait.”

Paul Nikolich, who heads the Wi-Fi committee for the Institute of Electrical & Electronics Engineers, a standards-setting body, says Qualcomm and the carriers should submit their evidence to his committee for review. That’s the usual process for mass adoption of new Wi-Fi technologies, which often takes a year or longer. “The people who have looked at it very carefully are very concerned they will gobble up more than their fair share of spectrum,” says Nikolich, a consultant and investor in Essex Fells, New Jersey.

LTE-U may also act as a disincentive for companies experimenting with Wi-Fi phone calls, including Comcast, and those dabbling in fibre networks, like Google. **Cisco Systems** is arguing both sides, writing in a June filing to the FCC that regulator interference can lead to unnecessary delays but that companies developing technologies rarely prioritise peaceful coexistence with rival systems.

“Wi-Fi is acting as a counter to the consolidation we see in mobile networks,” says Dean Bubley, founder and head of consulting firm Disruptive Analysis. Regulators should make sure to keep that counterweight in place, he says, especially since carriers haven’t demonstrated serious trouble with cell capacity. “There is a distinct risk of tragedy of the commons here,” he says.

At the end of October, a group of chief technology officers and executives from companies including **Time Warner Cable** and **Cablevision**, as well as Google, Microsoft, and

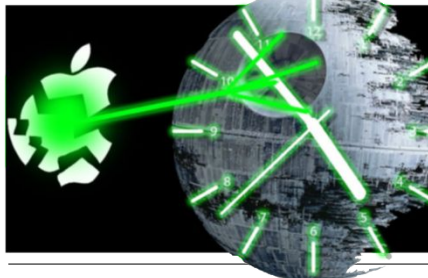
Comcast, met with FCC Chairman Tom Wheeler to show him reports they say prove LTE-U would harm Wi-Fi networks. The agency ultimately may have to make the call, says Paul Gallant, an analyst for investment bank Guggenheim Securities. Google and Comcast are planning to offer data-hungry services that rely on Wi-Fi, and they want the FCC to make sure they’re protected from interference, he says.

“Folks, you’ve got to come together and resolve this in a broad-based standard,” FCC Chairman Wheeler said at a news conference on 19 November in Washington. Says Grace, the agency spokesman: “If necessary, we will step in.” —*Ian King, with Todd Shields*

The bottom line Some of tech’s biggest names are squaring off over a new cellular technology that may wreck Wi-Fi networks.

Intellectual Property

Building an Arsenal of Smartwatch Smarts



► **Swatch’s boss has been cool to the idea but is stockpiling patents**

► **“People are trying to put too much in there”**

Ever since smartwatches started hitting the market, **Swatch Group** Chief Executive Officer Nick Hayek has downplayed their importance, dismissing even **Apple**’s offering as “not a milestone” and saying the devices pose no threat. But he’s not taking any chances.

Swatch has filed 173 US and international patent applications related to smart- and connected watches in recent years, most of them since 2012, according to Envision IP, a patent law

firm in Raleigh, North Carolina. While aggressive patent filing is an essential protective strategy in the hyperlitigious technology industry, Envision says Swatch is laying the foundation for a potential lineup of smartwatches. The Swiss company has “developed and patented watch circuitry and hardware that will allow them to introduce their own branded smartwatch without having to partner with telecoms and handset makers,” says Maulin Shah, Envision’s managing attorney.

The epicentre of Swatch’s patent efforts is a subsidiary called Ingénieurs Conseils en Brevets, or Patent Consulting Engineers. From offices along a stone-arched arcade in the medieval Swiss town of Neuchâtel, lawyers manage the intellectual property developed by Swatch’s legions of researchers for timepieces ranging from \$50 Flik Flaks to \$5,000 Omega Seamasters to the \$50,000-plus Breguet Classique Hora Mundi. A patent published in March is for a smart battery that allows data transmission. One from May is for a radio-frequency signal receiver. And one from October, naming Hayek as the inventor, is described as a “portable object for detecting presence of apparatus by wireless communication circuit.”

The company declined to say what any of the patents are for or to make Hayek or other inventors available for this article. Swatch says its patent unit filed a record number of applications in 2014, with a goal of protecting its innovations, gathering market intelligence, and fighting counterfeiting. In the past, Hayek has had little positive to say about smartwatches, criticising them for their short battery life—typically 24 hours or less—and features that are easier to use on smartphones. The Apple Watch, while “the nicest” on the market, breaks no new ground with its design, Hayek said in March. “People are trying to put too much in there that a phone can already do,” he said.

Swatch hasn’t entirely sat out the shift toward smartwatches, though it eschews that label. Since 1999 it’s offered touchscreen timepieces such as the \$1,250 Tissot T-Touch

◀ Expert Solar watch, which has a compass, can track altitude, and runs on solar power. And Swatch is developing mobile payment capabilities for watches based on technology similar to that in touch-enabled bank cards. The company says early next year it will introduce a \$90 watch called the Bellamy that can be used to make electronic payments at stores. Alessandro Migliorini, an analyst at Mirabaud Securities in Geneva, says the company is hedging its bets while waiting to see whether smartwatches take off. “Swatch will experiment with different functionalities, and if there is demand, they will then push more aggressively,” Migliorini says.

Swatch has been burned by earlier forays into new technologies. Hayek has said the company still has unsold models of a 1991 pager that flopped and of the Paparazzi, a watch it made with **Microsoft** about a decade ago that could receive messages and stock quotes.

But he also knows the risks of falling behind trends and the importance of protecting intellectual property. Hayek’s father, Nicolas, formed Swatch in 1983 by merging two struggling Swiss watchmakers. Although

the technology for quartz timepieces was developed in Switzerland, Japanese companies had been more successful in commercialising the new watches. The senior Hayek countered with funky, multicoloured designs

that captured the public’s imagination and secured Swatch’s fortunes. The company is now valued at about \$19 billion. “The quartz crisis is in the background of everything they do,” says Jon Cox, an analyst at brokerage Kepler Cheuvreux in Zurich. “It probably leaves a bit of a scar on them, and that’s something in the back of their minds when they have technology: Patent first, ask questions later.” —*Hugo Miller, with Corinne Gretler and Susan Decker*

The bottom line Swatch has filed smartwatch-related patents in recent years, even though CEO Hayek has been dismissive of the devices.

Cybersecurity

Stop, or We’ll Tell Your Parents

▶ **UK police are stepping up their house calls to teen hackers**

▶ **The PSA campaign tag line: “Cyber crime wrecks lives”**

It was a summer morning, officer Paul Hastings recalls, when he arrived at a suspected hacker’s house in the northern English city of Hull. There, police had tracked one of the people who’d signed up online for a hacking service called Lizard Stresser that was used to attack companies including **Microsoft**, **Amazon.com**, and **Sony** at the end of 2014. This particularly fearsome cybervigilante was asleep when Hastings knocked, so his dad answered the door.

The visit was one of about 50 UK police made this year to people they say used the Lizard Stresser site, many of them children. Hastings is part of the Prevent team at the cybercrime unit of the UK National Crime Agency (NCA). The eight-person team tries to scare offenders on the “periphery of cybercrime” about the consequences of online misdeeds before they commit a jailable offence, boss Richard Jones says. Often, that means talking to teenagers. On 25 November, UK police arrested an 18-year-old from Wales in connection with the hack of Internet provider **TalkTalk**, which told customers in October that about 20,000 bank account numbers had been compromised. It estimates associated costs of £35 million (\$53 million). Police have arrested four other teens across the UK in connection with TalkTalk’s breach, though none of the five has been charged or identified.

The UK has a long history with juvenile black hats. In 1994, when US Air Force researchers found an unauthorised user on their systems downloading data, they tracked the hacker to a North London suburb. Working with London police, they found their culprit: a 16-year-old boy in an attic bedroom, as journalist Gordon Corera recounts in *Intercept: The Secret History of Computers and Spies*.

In 2011 hacktivist group LulzSec accessed Sony servers, posted fake news stories on News Corp. websites, and intercepted FBI communications from a private contractor’s computer system. Two of the four members arrested in the UK and the US that year were 18 or younger when the attacks took place. The NCA team began its cease-and-desist visits last year and says it’s made 150 house calls in 2015.

Teen hacker subcultures can be an opportunity for law enforcement, says Robert Schifreen, one of the first people in Britain to be prosecuted for cybercrime. Charged with forgery for hacking Prince Philip’s e-mails in 1985, Schifreen was acquitted in 1987—an appeals court said existing laws couldn’t cover what he did. He went on to found IT firm **SecuritySmart** and now works for Brighton University. “There are a lot of hugely knowledgeable, obsessive, skilled, curious young people out there who want to find out just how far they can push technology,” Schifreen says. “Spelling out to these kids just how far they can go, while remaining on the right side of the law, makes a lot of sense.”

The young hackers Jones sees come from a wide range of backgrounds, he says, but share an acuity for problem-solving. Praise from online hacking communities is a natural draw, says Grainne Kirwan, a psychology lecturer at the Institute of Art, Design and Technology in Dún Laoghaire, Ireland. The suspect in Hull, roused from bed, didn’t make eye contact while Hastings outlined the allegations against him, the officer says. But he hasn’t come to the police’s attention since, and the Prevent team calls that a success.

The NCA is also targeting teens and their parents with an ad campaign that began running in UK cinemas on 8 December. The dramatisation shows two parents in their living room boasting about their computer genius son and his inexplicably large bank account. It cuts to two NCA officers in a police interview room, with the tag line “Cyber crime wrecks lives.” The hard sell won’t work on some kids, Jones acknowledges. “Those,” he says, “are the type of individuals we will try to arrest and prosecute.” —*Kit Chellel*

The bottom line The UK’s National Crime Agency is trying to scare young hackers straight with door-knocks and ad campaigns.

Nigeria

Software Game On

Hundreds of guests poured into the Pinefield Schools auditorium in Lagos for the second annual West African Gaming Expo, a showcase for software created in the region and hardware built elsewhere. Adedoyin Ogundoyin, the founder of local online gaming marketplace **AfricGames.com**, says he organised the expo on a budget of \$5,000 to demonstrate to sponsors—including Google, local bank GTBank, and the UK's Bournemouth University—that the region's developers deserve more



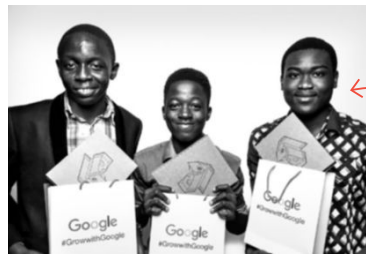
investment. The coders' projects, and the attention and financing they attract, also show students, parents, and schools that games can be more than silly distractions, Ogundoyin says. Some of the young developers

who presented at the expo in the last days of October took home Google Cardboard and other merchandise from the sponsors. —Caroline Tompkins, with photography by Ima Mfon



▲ A gamer mum offers her daughter a glimpse of VR on a headset lent to the expo by Oculus Rift.

► Children participate in a Mortal Kombat X tournament, organised by local arcade owners. Other tournaments featured one of FIFA's soccer video games and the fighting game Tekken.



15

Developers who presented products at the gaming expo

\$5k

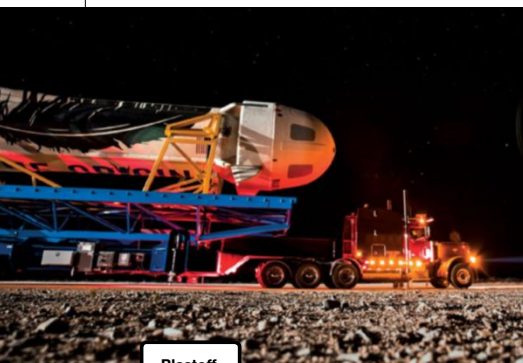
Budget put up by Google and others

\$75k

Amount organisers are trying to raise for a larger venue and bigger prizes next year

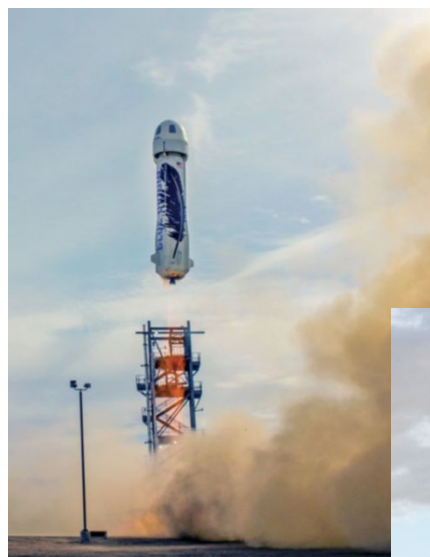


◀ A Microsoft Kinect captures players' moves during a dance-off.



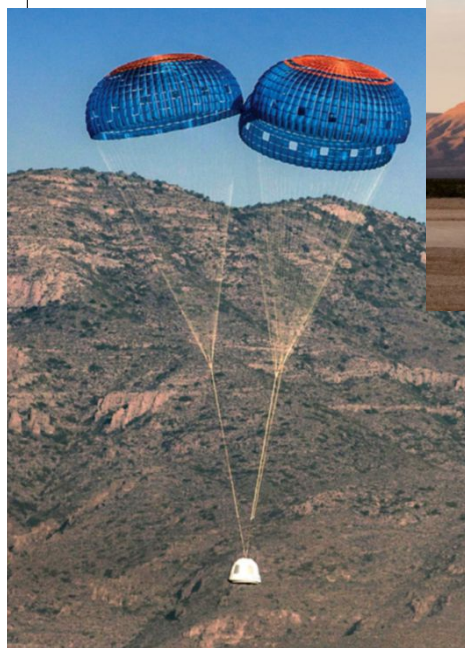
Blastoff,
rinse,
repeat

▲ Blue Origin's reusable *New Shepard* spacecraft rolls toward the company's launch pad in West Texas



▲ The craft begins liftoff. Its crew capsule climbed to 94,000 metres above earth's surface before beginning its descent

▼ The capsule returns to earth after a clean separation from the propulsion module



Rocketry

Jeff Bezos Just Ignited A New Space Race

► Blue Origin's rocket landing means fresh competition for Elon Musk

► "Full reuse is a game changer, and we can't wait to ... fly again"

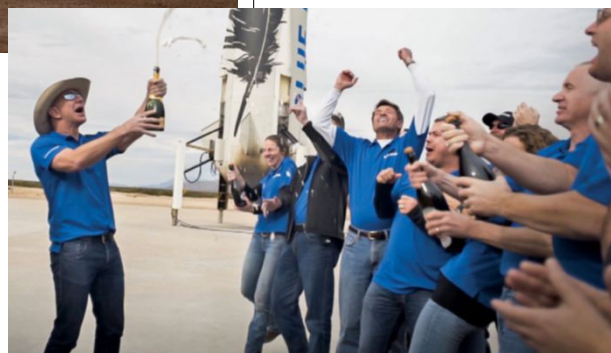
For 15 years, Jeff Bezos's **Blue Origin** has been the great mystery of the space industry. Despite backing from Bezos, **Amazon.com**'s chief executive officer, and the occasional test-launch video that wowed techies, the aerospace company didn't seem to be accomplishing all that much compared with Elon Musk's **SpaceX**. Now, though, it's clear that Blue Origin is ready for a bigger spotlight—and that a new space race is under way.

Just before Thanksgiving, Blue



▲ The propulsion module contends with heavy crosswinds and lands just a few feet from where it took off

► The Blue Origin team celebrates with founder Jeff Bezos (yes, the one in the cowboy hat)



Origin sent its *New Shepard* ship into space and brought the rocket back down to earth. Fighting 190-kilometre-per-hour crosswinds, the craft landed less than 1.5 metres from where it took off. "Now safely tucked away at our launch site in West Texas is the rarest of beasts—a used rocket," Bezos said in a statement. "Full reuse is a game changer, and we can't wait to fuel up and fly again."

Musk's SpaceX has been the go-to provider of relatively cheap rocket launches, charging about \$60 million a pop to get something big into orbit. The hope behind Blue Origin's launch is that reusable rockets could one day bring prices closer to \$6 million.

Blue Origin's successful flight comes with caveats. First, it's only a test run. Second, the *New Shepard* craft is aimed more at space tourism—a few minutes of weightlessness—than setting up a satellite or resupplying the International Space Station. It's a lot tougher to land a rocket back on earth in one piece after those kinds of missions. On 21 December, SpaceX made a *Falcon 9* booster the first piece of an orbital rocket to land back on earth, minutes after lofting satellites toward orbit.

On Twitter, Musk congratulated Bezos after Blue Origin's success. Then he issued a series of follow-up messages describing SpaceX's quest as a more difficult project and noting that other groups have landed vehicles after "suborbital" flights. Calling Blue Origin a "suborbital" player is a way of saying, "Your engineering's weak, bro."

Since founding Blue Origin in 2000, Bezos has let his team of engineers work in near-total secrecy without worrying about financing. Musk, pressured intermittently by funding concerns at **Tesla Motors** and **SolarCity**, has kept SpaceX going since 2002 by winning aerospace contracts with governments and communications companies around the globe. Deadline

pressure paid off: SpaceX has completed about 20 successful missions and has a backlog of flights valued at several billion dollars.

As Bezos edged closer to commercial spaceflight in the past few years, Musk has taken to hurling barbs. In 2013, when they were fighting over access to a NASA launch pad, Musk told *SpaceNews* that Blue Origin had little chance of creating a reliable suborbital spacecraft within five years. “Frankly, I think we are more likely to discover unicorns dancing in the flame duct” of a Blue Origin rocket, he said. SpaceX and Blue Origin have also squabbled over the poaching of employees. At one point, SpaceX set up an e-mail filter to look for anyone receiving a message with “Blue Origin” in the text.

The SpaceX CEO has taken exception, as well, to Blue Origin’s attempts to patent reusable rocket technology. “There’s no chance whatsoever of the patent being upheld, because there’s five decades of prior art of people who proposed that six ways to Sunday in fiction and nonfiction,” Musk said in an interview published earlier this year. “It’s like Dr. Seuss, green eggs, and ham. That’s how many ways it’s been proposed. The issue is doing it and, like, actually creating a rocket that can make that happen.” Blue Origin didn’t respond to a request for comment for this story.

Their engineering spats aside, SpaceX and Blue Origin have opened up the potential for significant advances. Traditional aerospace players such as United Launch Alliance, a Boeing-Lockheed Martin joint venture, and Europe’s Arianespace, which had shown almost no interest in pursuing reusable rockets, are researching, or at least talking about, the technology again. It looks as if the US, utterly uncompetitive in the global spaceflight market for more than a decade, has the two most promising startups in the industry. All thanks to an online book-seller and that PayPal guy.

—Ashlee Vance

The bottom line Blue Origin’s successful launch and landing of *New Shepard* raises the pressure on SpaceX to bring its prices below \$60 million.

Innovation

Superbattery

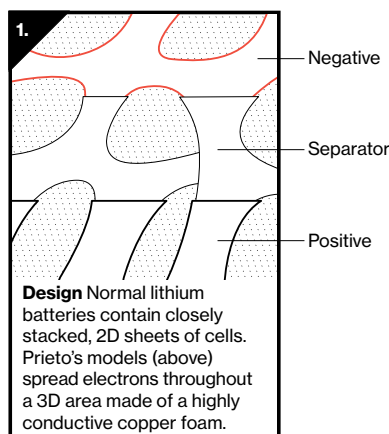
Form and function

Lithium ion batteries get a bit more efficient every year, but they aren’t keeping pace with the demands of mobile devices, electric cars, or the grid. More flexible designs can be at least twice as powerful as current ones.

Innovator Amy Prieto

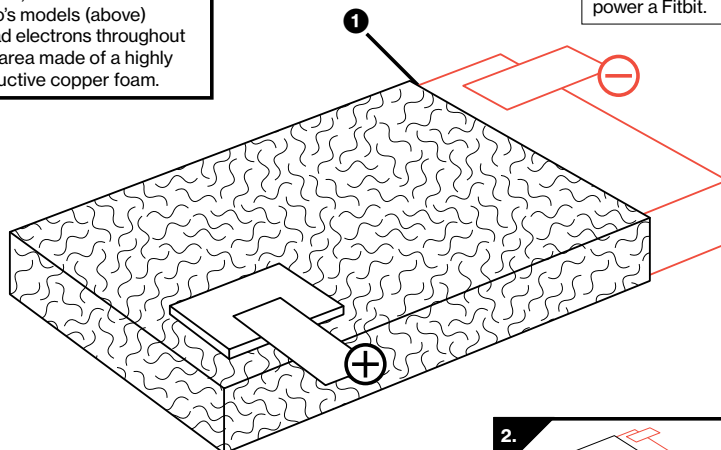
Age 41

Chief executive officer of nine-employee Prieto Battery in Fort Collins, Colorado.



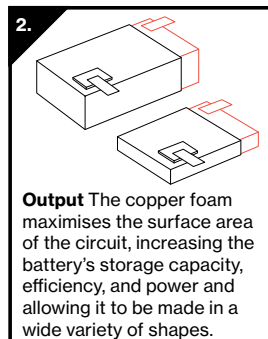
Origin Prieto, who has a Ph.D. in inorganic chemistry from the University of California at Berkeley, developed her design at Colorado State and formed her company in 2009.

Uses The company says it’ll be able to make batteries big enough to store grid-scale solar energy and small enough to power a Fitbit.



Stats The company is working on a battery that can be charged in as little as five minutes and run at high power for as long as 10 hours.

Funding Prieto has received an undisclosed amount from Intel’s venture capital arm, and it’s trying to raise an additional \$3 million.



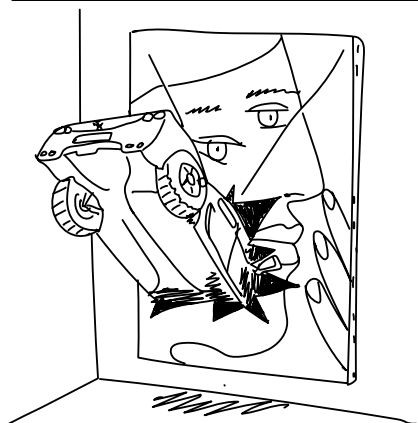
Next Steps

“Battery life continues to be a significant pain point for mobile users,” and Prieto’s model is a step forward, says Wendell Brooks, president of Intel Capital. Prieto says it plans to bring the batteries to market within two years and is in talks with manufacturers. The company’s also licensing its copper-foam-based technology to other companies. —Ian King

Insuring the Toys Of the Wealthy

► Writing policies for the possessions of the 1 Per Cent is a \$40 billion business

► “We see everything from traditional art to the world’s largest collection of shrunken heads”

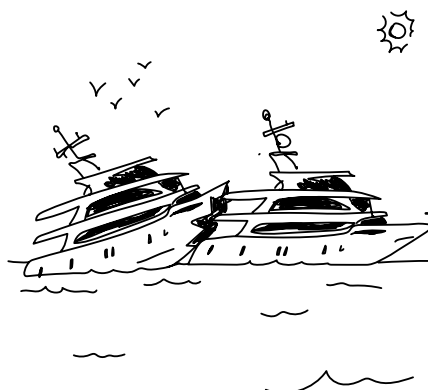


Filled with oil paintings, watercolours, and other artworks, the offices of **Privilege Underwriters Reciprocal Exchange (PURE)** in White Plains, New York, look like a Manhattan gallery—that’s been through a storm. “We have a water-stained Salvador Dali, we have an ancient Chinese plate that is cracked and reframed in a box,” says Ross Buchmueller, the insurer’s chief executive officer. “And obviously we have this glass structure that greets everybody when they come in,” he adds, referring to a 1.5-metre sculpture with a crack in it that the company got from a client after paying his claim for its full value. “We have now installed damaged art throughout the building,” Buchmueller says. “It’s a constant reminder for why we are in business.”

PURE specialises in insuring the mansions of the ultrarich and their contents, a niche that is expanding rapidly as the ranks of US billionaires swell. The company has about

50,000 policyholders; revenue from premiums has climbed 40 per cent or more annually since its founding in 2006 and will come close to \$500 million this year. Almost all its policyholders buy homeowners insurance, more than 80 per cent also buy excess liability coverage, and about 75 per cent pay extra to insure collections of art, wine, and other items. The business isn’t only about possessions: This year, PURE formed a partnership with **Concentric Advisors**, a cybersecurity firm run by a former Scotland Yard official, to help protect policyholders from hackers, identity theft, and breaches of financial data and embarrassing information.

Insuring emblems of wealth is a \$40 billion business, says Evan Greenberg, CEO of **Ace**, the industry leader in the US. The overall property and casualty business generates almost \$600 billion in annual premiums. Still, insurers like the luxury



business because few collectibles are ever stolen or damaged and clients are willing to pay a lot to protect them, a combination that keeps profit margins high. Policyholders also take very good care of their prized possessions, says Buchmueller, who helped launch **AIG**’s private client group before leaving to start PURE.

The market keeps getting bigger. The wealth of the richest people in North America is expected to balloon to \$62.5 trillion in 2019, from \$50.8 trillion last year, says Boston Consulting Group. Next year the top 1 per cent will hold more than half of the world’s wealth, according to Oxfam International. “The 1 Per centers have done pretty well in life, and they have a lot of toys to insure,” says Cliff Gallant, an analyst at Nomura Holdings who covers the insurance industry.

Although premium levels vary, PURE says insuring fine art valued at \$1 million might cost \$1,000 a year,



and covering the same amount of jewellery might run to about \$8,000, because the jewellery is more likely to be lost or stolen. AIG has begun insuring clothing, shoes, and handbags, charging about \$5,000 a year to cover clothing valued at \$1 million. "We see everything from traditional art to the world's largest collection of shrunken heads," says Jerry Hourihan, who runs AIG's private client business. The latter is hard to value, he adds, "because you can't find a new collection of shrunken heads." He declined to provide details to protect the owner's privacy.

Ace's July agreement to buy Chubb for \$28.3 billion will triple Ace's high-net-worth annual premiums to \$4.6 billion, giving it 12 per cent of the US market, according to Bloomberg Intelligence. AIG's private client unit took in about \$1.5 billion this year in premiums and insures about 40 per cent of billionaires in the US, Hourihan says. PURE plans to focus on the US. AIG and Ace are targeting places such as Dubai, China, and India. **Cincinnati Financial** and **Nationwide Mutual Insurance** also have announced plans to boost offerings for the wealthy.

At AIG, Buchmueller helped secure a contract with a firefighting team in California, allowing the company to offer a private emergency crew to deploy in neighbourhoods prone to wildfires. Wealthier clients "like to build homes where the wind blows, where there are wildfires, where the earth shakes," says Kelley Beach of insurance broker **Marsh & McLennan**.

AIG also has a former America's Cup sailor on staff to advise yacht owners. When a 65-foot Viking Sportfish valued at \$2.5 million was stolen from a Palm Beach (Florida) marina in 2010, it took only a few hours to retrieve the boat. The search was helped by AIG's connections with authorities and filling stations along the coast and in the Caribbean. The insurer hired a plane to search for the yellow-hulled ship and had a legal team on the ground to obtain warrants to secure it.

Donald Kirson buys insurance from PURE for the six-figure collection of duck decoys he keeps at his farm

in Glyndon, Maryland. Kirson, who retired after selling his medical equipment business in 1998, has been buying decoys for about 12 years. He's never had one stolen, and the wooden carvings rarely break. He lends out pieces only to local museums so he doesn't have to ship them.

Most recently, Kirson spent about \$175,000 to buy a piece carved in 1880 in Cobb Island, Virginia—a rare item because the region was devastated by a hurricane in 1902, he says. "It's got movement, it looks real, it just talks to you," he says. "Beautiful form, old paint. It's got shot marks in it because it was hunted over. It's everything you would want in a decoy." That kind of passion makes for ideal policyholders, Buchmueller says: "From an insurer's perspective, you can only dream of people who care that much."

—Sonali Basak

The bottom line PURE's business covering homes and possessions of the ultrarich has been growing at least 40 per cent a year since 2006.

Islamic Finance

A Malaysian Standards Body Spreads the Word

► **The Middle East is among the markets targeted by CIIF**

► **"There is a lack of accepted global standards"**

A Malaysian institute set up seven years ago to improve education standards for Islamic finance professionals is going global as it seeks to fill a void of experts with specialties such as insurance and law. The Chartered Institute of Islamic Finance Professionals in Kuala Lumpur aims to increase membership of qualified practitioners to 3,000 in three years, from 400 now, says **Badlisayah Abdul Ghani**, its president and former chief executive officer of CIMB Islamic Bank. The CIIF, which changed its name and geographical

focus in 2015, is in talks with associations and regulators stretching from the Middle East to Indonesia as part of that campaign, he says.

The \$2 trillion industry has long been plagued by a shortage of individuals who have studied beyond the prerequisite skill base and CIIF plans to start offering specialised courses next year to address the problem, which is

hindering development, Badlisayah says. The Kuala Lumpur-based Finance Accreditation Agency estimates 56,000 more qualified experts will be needed to fill positions in the next five years as

growth accelerates.

"There is a lack of accepted global standards for professional qualifications—similar to accounting—the absence of which has created differences in talent skills requirements across jurisdictions," says Daud Vicary Abdullah, CEO of the International Centre for Education in Islamic Finance in Kuala Lumpur. "The industry is still at a nascent stage where talent development and planning are concerned."

CIIF was formerly the Association of Chartered Islamic Finance Professionals, which was established in 2008 and whose intake was mainly graduates from Malaysia's INCEIF. The newly formed institute will help promote members globally and aims to provide a common standard of education acceptable in the various countries offering Shariah-compliant products, Badlisayah says.

The standards and codes of conduct issued by CIIF will be recognised and adopted under the Islamic Finance Profession Charter, which was signed by key Shariah-compliant associations in Malaysia, Badlisayah says. The guidelines will extend to other qualified leading organisations

56,000

Qualified Islamic-finance professionals needed over the next five years to meet demand



◀ such as the Bahrain-based General Council for Islamic Banks and Financial Institutions and the Indonesian Syariah Banking Association if they sign up, he says, adding that they could eventually be made a requirement across the board.

Asset growth in an industry where interest payments are forbidden showcases the need for trained professionals, with the Kuala Lumpur-based International Shariah Research Academy forecasting a \$3 trillion market by 2018. Sales of Islamic bonds known as sukuk, which scholars need to vet for conformity with religious laws, have climbed to above \$45 billion in the past three years, compared with less than \$10 billion a decade ago, data compiled by Bloomberg show. Takaful contributions, the equivalent of conventional insurance, are expected to reach \$20 billion by 2017 from \$14 billion in 2014, according to Ernst & Young.

There's still a gap in the market for trained experts even as the range and selection of courses expands around the world. There are essentially two types of Shariah professionals, says Abdul Rahman Mohd Yusoff, head of the Shariah department at OCBC Al-Amin Bank and also a CIIF member. There are those with a degree in pure Shariah law or Fiqh, or those with an equivalent degree in commercial and business aspects known as Muamalat, he says.

On the other hand, there also graduates with Bachelor's degrees in non-Islamic disciplines who supplement them with qualifications in Shariah-compliant finance such as Ph.D's or certificates from other accredited organisations, Abdul Rahman says. "This makes the degree in Islamic finance an add-on rather than the primary one that will govern their future, lessening the pressure on them to go the extra mile to achieve the qualification," says Abdul Rahman at the Islamic unit of Oversea-Chinese Banking Corporation, Southeast Asia's second-biggest lender. "To address the shortage, it might be useful to make it mandatory for all staff handling Islamic finance products to sit for at least the certification courses." —*Elffie Chew and Liau Y-Sing*

The bottom line A Malaysian organisation wants to set global standards for Islamic Finance professionals, amid growing demand.

Monetary Policy

Egypt's Cheap Meals Point to a Devaluation



► Affordable food stalls suggest preparation for a spike in inflation

► "It's quite clear that they're moving in the direction of a devaluation"

The latest sign Egypt may be gearing up to devalue its pound? Discounted meals, being served up on Cairo street corners by the army and police for less than \$1. President Abdel-Fattah El-Sisi, who came to power two years ago in the wake of the Arab Spring, ordered the food drops in November. To economists at Dubai-based lender **Emirates NBD** and Egypt's **Pharos Holding**, they show authorities are preparing for the jump in inflation a weaker currency might bring.

There are other indications Egypt may be about to tear up the capital controls that are crippling the economy and allow the pound to trade more freely. State-owned lenders raised interest rates on local deposits in the past two months to boost the pound's appeal. And the central bank paid more than \$500 million due to foreign stock and bond investors, taken as a sign it's more willing to let money leave the country. "Independently

these measures may not mean much, but collectively, when you look at the broader picture, it's quite clear that they're moving in the direction of a devaluation," says Jean-Paul Pigat, an economist in Dubai at Emirates NBD, the second-biggest bank in the United Arab Emirates. "What started out as temporary capital controls have been kept in place for a lot longer than planned. Something needs to give."

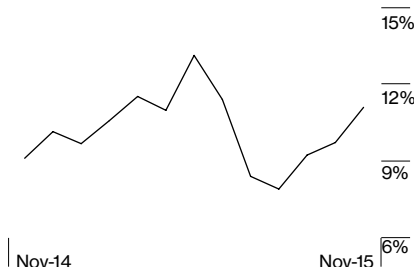
Egypt's pound effectively can't be traded outside the country and is pegged to the US currency at a rate of 7.8301 per dollar. The central bank has devalued the exchange rate three times in 2015, and strengthened it in November, leaving it almost 9 per cent weaker this year. That compares with declines of about 20 per cent for Turkey's lira and South Africa's rand.

Following its earlier devaluations, the central bank surprised markets in November by strengthening the pound for the first time in more than two years, without giving a reason. The move coincided with a rate increase by the two biggest state-run banks—stoking speculation it was aimed at edging toward a more liberal for-foreign-exchange system while increasing the pound's appeal to investors. "I see appreciating the pound, alongside higher deposit rates, as preparation for an FX move," says Hany Genena, chief economist at investment bank Pharos Holding in Cairo. The moves are an attempt "to quell a speculative attack at its outset."

What the economists are talking about is different from devaluations implemented over the last five years. They're anticipating a shift to a freely floated rate or at least a less rigid peg, as well as the dismantling of capital controls implemented since 2011. Emirates NBD's Pigat forecasts the pound will depreciate 13 per cent by the end of 2016 as a result. Central-bank officials didn't respond to a request for comment.

Pressure is building for Egypt to free up its currency regime to attract foreign investment that fled North Africa's largest economy after the 2011 Arab Spring. The country has burned through at least \$20 billion in aid from its Gulf Arab allies since El-Sisi led the military to consolidate its power two years later. The shortage of foreign cash is undermining the economy, with

Egypt's Inflation Rate



DATA: CENTRAL BANK OF EGYPT, HEADLINE CPI

private-sector non-oil business activity shrinking in eight out of 11 months this year, according to an industry report published this week.

A currency devaluation is also signalled in pound forward contracts, black-market rates and the difference in prices between company stocks traded locally and abroad. All three are at, or near, record highs. Twelve-month non-deliverable forwards—one of the main ways traders speculate on Egypt's currency—hit 10.5 pounds on 10 November, the weakest since 2007, according to data compiled by Bloomberg. Shares of Egypt's three most easily traded company stocks reflect an implied exchange rate of 8.89 pounds a dollar, data compiled by Bloomberg show. Black-market currency dealers in Cairo and Alexandria charge 8.578 pounds for a dollar, according to the average of four quotes in a Bloomberg survey on 9 December.

A weaker currency tends to push up prices for consumers. That would be a particular challenge in a country where almost half of citizens live near the poverty line. Inflation is already running at an annual pace of about 10 per cent, compared with 3 per cent or less in nearby Jordan, Qatar and Saudi Arabia.

Food is the biggest contributor to Egypt's consumer-price index. Outlets run by the army, police and the government are being set up on street corners in major cities across Egypt. They're selling everything from snacks to beef and chicken to both individuals and stores, with meals at prices comparable to about a decade ago. "I believe the move to contain prices is a precursor to a devaluation as the government tries to shield low income segments from inflation," says Ziad Waleed, economist at Cairo-based investment bank Beltone Financial. "Following the same FX policy will only lead to the same results. Something has to change." —*Ahmed A. Namatalla and Ahmed Feteiha*

The bottom line There are indications that the Egyptian government is preparing to devalue its currency to boost foreign investment.

Bid/Ask

By Rahul Odedra



\$10b

China and the United Arab Emirates have agreed to create a co-investment fund to make strategic deals around the world as the Gulf nation seeks to strengthen ties with its largest trading partners. The UAE-China Joint Investment Cooperation Fund will be managed by Abu Dhabi's **Mubadala Development, China Development Bank Capital**, and China's State Administration of Foreign Exchange.

\$4.5b

Orpic signs Liwa Plastic Industries Complex deal. Procurement and contracting packages have been awarded to four companies for the project in Sohar, expected to be completed in 2019.

\$3.2b

Abu Dhabi buys US industrial property. An Abu Dhabi Investment Authority unit and a Canadian pension investment management company purchased 209 units from Exeter Property Group.

\$3b

Qatar National Bank in Turkish expansion. The bank has agreed to buy National Bank of Greece's Turkish unit as it looks to grow across the Middle East and Africa.

\$1b

IPO activity down in Saudi Arabia. Capital raised in IPOs in the kingdom last year was down from \$6.4 billion in 2014, according to global law firm Baker & McKenzie.

\$828m

Yahoo! Japan buys Ikyu. The travel website will help Yahoo sharpen its reservation game in Asia, where restaurant bookings still haven't migrated to the Internet.

\$390m

Salic's got beef with Brazil. The Saudi state-owned company has agreed to take a 20 per cent stake in beef producer Minerva, giving it better access to Middle East markets.

\$9.2m

Ringo Starr cashes in. The Beatles drummer auctioned off more than 1,300 personal items, including clothing, jewellery, and instruments. One drum kit fetched \$2.1 million.

The next time.
The easy option.
The excuse.
The status quo.
The 5am workout.
The empty streets.
The first in.
The last out.
The DIFC.
The team.
The baton.
The race.

The restless truth.

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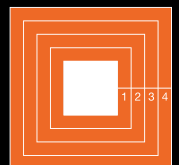
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SQUARE MILE
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DUBAI**

SOCIAL MEDIA

By Shayan Shakeel



**The Arabic language
challenge**

S2

**Advertisers still hesitant to
go digital**

S4

**Who will fill the region's
hunger for content?**

S5

GROWING LOCAL LANGUAGE TALENT

LinkedIn's Arabic platform is addressing a disconnect between the demand and supply for talent in the market, but a number of issues will challenge its success

Armed with a bachelor's degree in Arabic, 35-year-old Ali left Syria in 2010 hoping to find a job as a teacher somewhere in the Gulf. "I speak good English and have teaching experience in Damascus," he says. Five years later, Ali is driving a taxi in Dubai, unable to find work in a school. It has been tough "but where there's a will there's a way," he maintains. One question though continues to confound him. "I look in the newspapers and online. But I don't know: should I send my resumé in English or Arabic?"

Ali's difficulty in finding employment of his choice is a common one throughout the Middle East—and the language barrier is playing a role. Over 27 per cent of youth in the Middle East remain unemployed, according to a 2012 survey by the World Economic Forum, a number which the organisation expects to rise by 2020. Large numbers of unemployed youth are widely believed to have been a primary factor in the Arab Spring a few years ago. Part of the unemployment problem is that a marketplace exists where language limits talent from discovering opportunities, says Ibrahim Fikri, director of projects and programmes at the UAE's Federal Authority for Government Human Resources (FAHR). "For Arabic speakers with no second language, it is an obstacle as almost everything is advertised and posted in English. If we are not mistaken, even this article will be in English. So native Arabic speakers with no second language are being left behind," he says.

Such structural inefficiencies grow even more complicated when considering the nuances affecting the marketplace for Arabic language talent, says Dr. Christopher Daniel, partner and managing director at Boston Consulting Group Middle East. While most employers do their best to "leverage existing employee networks," dialects, the ability to read, write, and speak, and familiarity with both formal and informal Arabic all affect demand and supply. "The expectations of the employer might not always be clearly articulated. This leads to potential conflicts where the Arabic speaker is expected to possess skills along all those dimensions, but in reality he or she does not," he says.

In March 2015, LinkedIn decided to do



Ali Matar,
head of talent solutions, LinkedIn MENA

“OUR GOAL IS TO CREATE ECONOMIC OPPORTUNITIES FOR PROFESSIONALS ACROSS THE GLOBE. WITH OVER 300 MILLION PEOPLE THAT CONSIDER ARABIC THEIR PRIMARY LANGUAGE, THE DEMOGRAPHIC IS SIZEABLE ENOUGH FOR US TO PURSUE.”

something about it. It launched Arabic language services—known as LinkedIn Arabic—on its existing platform, allowing users to create profiles in both English and Arabic. "Since our offices opened in Dubai in 2012, the main suggestion we received from clients and employers was the need for Arabic language," says Ali Matar, head of talent solutions at LinkedIn MENA. "Our goal is to create economic opportunities for professionals across the globe. With over 300 million people that consider Arabic their primary language, the demographic is sizeable enough for us to pursue."

The service has brought much-needed effi-

ciency to hiring processes in the UAE government, says Fikri. The FAHR partnered with LinkedIn soon after it was launched and has been encouraging employees and potential employees under its register to set up profiles on the platform. "Previously, we used referrals, websites, consultancies, and individual job ads on each federal website. It was time-consuming and scattered, but now we have a unified place to go to," says Fikri.

13% GROWTH IN THE NUMBER OF USERS ON LINKEDIN IN THE MIDDLE EAST SINCE FEBRUARY 2015, WHEN LINKEDIN ARABIC WAS LAUNCHED

However, while LinkedIn Arabic is a strong step in promoting employment opportunities across the region, there will be a number of challenges to its success in curbing the unemployment problem, says Daniel. "The UAE is a very attractive country to live and

work in for people from all over the world. Speaking Arabic in the UAE is thus more of an added advantage than a real must-have," he says. In other countries, highly qualified local language talent is scarce. "While the Arabic-speaking talent pool is relatively large for jobs requiring low- and medium-level qualifications, it is much smaller for high-level qualifications, especially when it comes to sought-after positions such as medical specialists and engineers," says Daniel.

Matar says most profiles on LinkedIn Arabic tend to be skewed towards the better qualified. "You have to be Internet literate to be able to use LinkedIn," he says.

But two specific trends in the market might lead to interesting developments in the future. "College students and fresh graduates are our fastest growing demographic. And mobile and smartphone penetration rates in the region are growing very fast," he says. The number of LinkedIn users in the Middle East has jumped by over 13 per cent since Arabic language support was launched in February, when it had 15 million users. "We conduct sessions with universities and institutions across the region and are seeing a lot of interest," says Matar. Last month LinkedIn also launched an Arabic version of its mobile application. "Over 50 per cent of our views come from mobile across the UAE, Saudi Arabia and Qatar, and this is going to rise. So there is a lot of room for growth and excitement," he says.

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Middle
East

PLUGGING THE WEB GAP

Businesses in the region are still not accustomed to being online, leading to doubts over how new social media advertising avenues would be received in a market with the world's lowest rate of paid social media

The point of an ad is to spur traffic to a destination, says Nitin Puri, CEO of BPG Cohn and Wolfe. On social media, an ad should take a user to a product or landing page. "But when only about 40 per cent of businesses in the region even have websites, let alone good websites, then why is anyone surprised social media advertising rates in the Middle East are so dismally low?" he asks.

Online adoption rates in the region, measured by a late 2013 Google survey, are surprising—only 13 per cent of small and medium enterprises across the UAE, Saudi Arabia and Egypt had any kind of web presence at all. Over 60 per cent of SMEs in each country had not considered having a website for their products and services.

With such a small pool of online advertisers, in 2014 the Middle East and Africa's combined spend on paid social media advertising was at a world-lagging \$110 million, according to market research firm eMarketer. Representing 0.6 per cent of the global share, the number is expected to grow over 50 per cent a year to \$280 million by 2017, but will still only account for 0.8 per cent of the global total.

Low online adoption rates and social media ad spend are central to the discussion on what kind of impact Facebook's buy button and YouTube's shoppable ads will have if and when they are introduced in the region. Launched in select North American markets earlier this year, both social media giants are trying to link advertisers directly to consumers via targeted ads that reduce the time

to buy products and services online. Facebook was unavailable to comment, but Joyce Baz, Google's regional spokesperson, said that while its TrueView product (the one that screens five seconds of video before letting a user opt for more) was already in use in the Middle East, there was little clarity in terms of when Google would launch shoppable ads here.

Google's study on web presence in the Middle East revealed that the majority of companies in the region "were unsure how the Internet could actually help their company." According to Puri, if companies don't understand how the Internet works, then they won't know what to do with a buy button. "A buy button is good to have anywhere on any platform," he says. "But advertisers have to make sure it redirects to the product page in a way that doesn't burden the online experience by being too time consuming. It needs to have only three clicks to buy or confirm interest."

Statistics in the Middle East continue to indicate that a change in mindset concerning online and social media is needed, something which the "sales-driven market is having a very hard time doing," he says. Sales continue to be seen as a function best executed personally, according to Puri. The real estate industry, where companies put pictures of properties online but still rely on brokers to meet clients face-to-face and make deals, is a prime

SOCIAL MEDIA AD SPEND

0.6%
global share

MEA
\$110 million

29.2%
global share

Asia Pacific
\$5.18 billion

43.5%
global share

North America
\$7.71 billion

Data: eMarketer, 2014

example. "If you continue to see a website as a tool with no sales or revenue potential, you spend 15,000-20,000 dirhams (\$4,084-\$5,445) on a site produced on WordPress, which can't handle forms and is nothing more than an e-brochure. It's only there because some other businesses have one too."

Facebook's buy button could be valuable for SMEs because it could work as an online store and reduce the costs of either operations or distribution, says Farhan Syed, analyst at KPMG. "But to be able to do that businesses need to sit down and figure out what their strategy is for going to the market."

Nine out of 10 users in the Middle East use their phones to go online, spending an average of 26 hours a week on the Internet, according to a 2015 Northwestern University in Qatar study. Therefore optimising the user's online experience over devices, creating web sites optimised for mobile, and capturing interest according to online habits is becoming crucial. But beyond experimentation and testing, few organisations are really willing to embrace social and online media, says Syed.

Financial institutions for instance are experimenting with mobile apps and other digital products but there is still a way to go toward the kind of awareness around social media that could really energise a business, he says. "In Germany, a digital bank called Fidor entered a crowded financial marketplace by creating a business model around social media—their interest rates are tied to Facebook likes. This goes beyond just feedback and interaction. It shows how every business has something to gain from social media."

"IF YOU CONTINUE TO SEE A WEBSITE AS A TOOL WITH NO SALES OR REVENUE POTENTIAL, YOU SPEND 15,000-20,000 DIRHAMS ON A SITE PRODUCED ON WORDPRESS, WHICH CAN'T HANDLE FORMS AND IS NOTHING MORE THAN AN E-BROCHURE."



Nitin Puri,
CEO, BPG Cohn and Wolfe

CONTENT IS COSTLY

Social media is content hungry, but clients aren't willing to pay for the high cost of content creation and agencies are feeling the squeeze

Almost 50 per cent of the Arab world spends more than five hours a day on the Internet, the majority of it on social networks, according to a 2014 report by the Mohammad Bin Rashid School of Government. While ripe with opportunity, the thirst for content on social media is crowding the pool for those in the content creation business, according to Waseem Afzal, head of digital at OMD. "PR, media, activations, content, marketing, and digital—there are a suffocating number of stakeholders vying for a piece of the social media pie, and at the end of the day, striving against each other for supremacy."

With so many agencies peddling their wares, revenues end up taking a significant hit and complicate cost dynamics, says Afzal. "We happen to have clients with exposure and maturity that know what they want and what they are expecting. But with boutique agencies popping out of the woodwork, clients that aren't as self-aware end up splitting their social media budgets much too thin," he says.

Creating content for social media involves significantly more costs than creating advertisements for social media, says John Ekambi, head of digital at Media Edge. "However if you include YouTube—and video has been seeing tremendous growth in the Middle East—then that increases costs even further because of the intricacies of creating video," he says.

With social media, content often needs to be created in real time. "If you have an event, and there are a lot of events in this region, you need to have someone there constantly creating content to go online on the platform," says Nitin Puri, CEO of BPG Cohn and Wolfe. That's just one instance of how the content market has changed and these new costs have to be compensated for in some way or the other, he says.

But it's not necessarily the cost of the tools and systems that are prohibitive. As the industry has grown, these costs have become relatively affordable, says Afzal. It's the cost of talent that has become the biggest threat to budgets. "Because the industry is young, the talent is young. And it's scarce. And since everyone is floating in such a small pool, they tend to churn a lot. This greatly inflates the value of talent in the market," he says. Meanwhile clients also suffer from the historical



Waseem Afzal,
head of digital, OMD

“BECAUSE THE INDUSTRY IS YOUNG, THE TALENT IS YOUNG. AND IT'S SCARCE. AND SINCE EVERYONE IS FLOATING IN SUCH A SMALL POOL, THEY TEND TO CHURN A LOT.”

legacy of “the old days,” when the cost of the platform was 80 per cent of the advertising budget while creative content cost 20 per cent, according to Puri. In the social media age, he says, the equation has flipped. “The cost of the platform now is 20 per cent and it costs us 80 per cent to create the content for it. But clients don't seem to be willing to understand that the costs of creating social media content have risen and it takes time and money.”

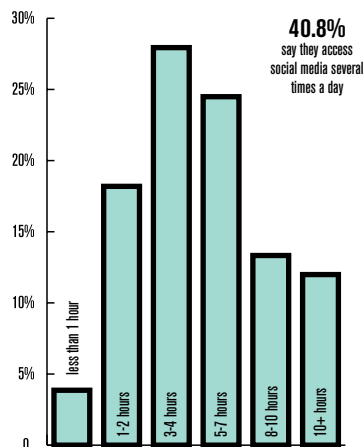
The low cost of the platform and the relatively low budgets clients are used to paying for content have major implications for free and advertising driven social media content. According to eMarketer, social media advertising spend in the Middle East in 2017 will continue to lag the rest of the world. Advertising on social media tends to be better suited toward e-

retailers whose business model makes it easier to convert clicks to sales by buying ad space to promote specific products and sales. However, large B2B companies with comprehensive communications strategies and web presence are increasingly relying on digital mediums beyond social media to direct ad spend. “Social media is an essential part of our communications mix but we largely use platforms to distribute our content and promote awareness and engagement. It's distinct from what ad spend might be used for,” says Rana Bouri, marketing director at Microsoft Gulf.

“The most frequent usage includes generating insights, connecting with influencers, performing background research on leads and getting the right contacts in organisations,” according to Tony Karam, managing director at Accenture Digital MENA. It's all about having a two-way relationship with your customers and stakeholders, he says. Avaya for instance has over 40 social media channels globally including in the Middle East. The company's main aim is to share industry related trends, news and case studies says Iman Ghorayeb, Avaya AMEA's communications director. “We dedicate an increasing proportion of our marketing spend on digital platforms toward content marketing and storytelling initiatives.”

With comprehensive communications strategies, the thirst for content is expected to continue unabated. There are margins in creating advertising for social media, but there are hardly any in the business of creating social media content, says Puri. “Fortunately for us, we happen to be an integrated player. That's the only way you can survive in the current industry environment.”

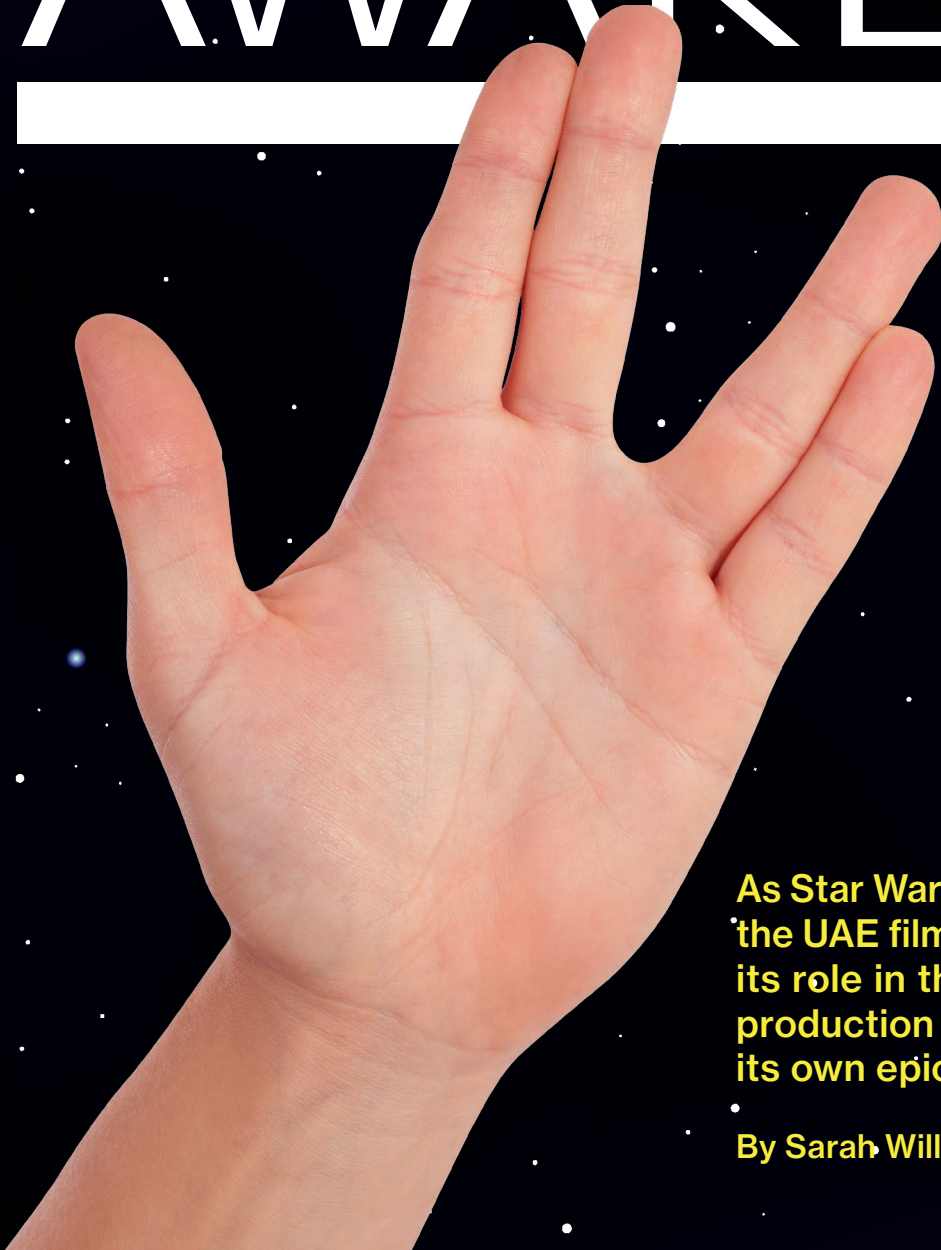
TIME SPENT PER DAY ON THE INTERNET



(MBSRG, Arab World Online 2014)

EPISODE I

THE INDUSTRY AWAKENS



As Star Wars mania grips the globe, the UAE film industry is hoping that its role in the mega-blockbuster's production is just the beginning of its own epic tale...

By Sarah Williams



ind sweeps across a desert landscape. A low, scorching sun rises over an undulating sea of sand. A young woman, Rey, appears from the wreckage of a spaceship and slides down a steep dune. This is Jakku—a small, desert outpost planet and the scene of one of the opening sequences in the new *Star Wars* movie, *The Force Awakens*. In reality, it's Abu Dhabi.

In April, 2014, shooting began in the emirate's desert for what was one of the most anticipated movies of all time. That excitement has translated into massive commercial success. Following its premiere in Los Angeles on 14 December, the blockbuster smashed all records by taking in \$1 billion in its first 12 days—even before premiering in China—and is set to become the largest grossing film in cinema history. This is before revenue from merchandising—expected to far outweigh that of ticket sales—is factored in.

For a film industry that was no more than a brainchild of the UAE government as recently as 2005 to host three months of filming and production for a movie that is breaking all kinds of commercial records is a laudable achievement. It all came about when Paul Baker, head of Film and TV Services at Abu Dhabi's media and entertainment free zone, Twofour54, approached Tommy Harper, executive producer of *The Force Awakens*, with whom he'd worked previously. Pitching what the emirate could offer, Baker asked him to consider filming in Abu Dhabi. Initially, the idea was shot down. "He told me they were going somewhere else," says the Brit. Two weeks later, Harper called back to tell Baker that they'd changed their mind—*Star Wars* would come to the UAE.

The *Star Wars* coup is just the latest in a series of similar tie-ups between the UAE film industry and major Hollywood productions: these have included box office hits such as *Fast and Furious 7* and *Mission: Impossible-Ghost Protocol*. Further exposure for the country's industry will come in 2016 with the releases of Brad Pitt's *War Machine*, the latest instalment of the *Star Trek* franchise, *Star Trek Beyond*, and Jackie Chan's *Kung Fu*

Yoga, all of which were partially filmed in the country.

For Noura Al Kaabi, Twofour54's chief executive officer, all of these productions are making a valuable contribution to the future of the UAE's fledgling film industry, but the exposure from *Star Wars: The Force Awakens* could be decisive. "Abu Dhabi has featured in every trailer and teaser that the studio has sent out for the film—at least 20 per cent of the cut, if not 30," she says. "We're being seen all over the world."

Since its inception in 2007, Twofour54 has been at the forefront of promoting Abu Dhabi's capabilities as a production location—and Al Kaabi is the big brain and master motivator behind it. After a successful career as IT boss for a variety of companies, she was approached by an old colleague, Khaldoon Al Mubarak, who was heading up the creation of Abu Dhabi Media Zone Authority (MZA). The MZA—which eventually created Twofour54 (the commercial arm of the government's media plan, named for the geographic coordinates of Abu Dhabi)—was being conceived with the aim of contributing to the diversification the UAE's economy, and Al Mubarak wanted Al Kaabi to lead the charge. When Al Kaabi started there was one broadcaster in Abu Dhabi. Since then, she has overseen the establishment of over 400 companies in the zone, including large anchor companies such as CNN Arabia, Entertainment Tonight Arabia, Sky News, Ubisoft, Turner and more.

Key to its attracting a string of big Hollywood productions to Abu Dhabi in recent years was Twofour54's creation of the Abu Dhabi Film Commission in 2009. The commission offers an aggressive 30 per cent cash rebate on filming budgets, which has played no small part in enticing Hollywood's moneymen to the UAE's shores. "If we actually want to go after this business, we have to do it the way everyone else in the world does, by offering a good solid film incentive," says Mick Flannigan, head of Abu Dhabi Film Commission since 2013.

Attracting industry talent and know-how like Flannigan's has been crucial, too. Clad in Converse and a ready smile, Flannigan brings 30 years of Hollywood industry experience with him. The

Los Angeles native chose Abu Dhabi as his next career move primarily because the industry in the UAE was so undeveloped. “My agent was looking for the next big thing for me and when the UAE came up, the real deciding factor was that I’d never been here. I like being involved in industry-building, which I’ve done a fair amount of. I’ve been all over: Bulgaria; Brazil; Shreveport, Louisiana. And I like being in new locations. I like getting things started.”

In his three years in the role, Flannigan has been quick to get results, with *Furious 7*, *Star Wars: The Force Awakens* and *War Machine* all wrapping up filming in Abu Dhabi between 2014 and 2015. He says that bringing such large-scale productions to the UAE is not an end in itself, but a means of developing the country’s film industry. “Once that business comes in, then we can start building the infrastructure.”

Of course, Abu Dhabi can’t take all the credit for the UAE film industry’s rising international profile: Dubai is contributing its fair share. *Mission: Impossible-Ghost Protocol*, *Star Trek Beyond* and *The Bourne Legacy*, to name a few, have all opted to shoot in the emirate, despite Dubai Film & TV Commission offering no rebate (Dubai, however, offers other financial incentives). While a rivalry surely exists, the commissions work hand in hand, cooperating to push the UAE film industry into the limelight, says Jamal Al Sharif, chairman of the Dubai Film & TV Commission. “Dubai and Abu Dhabi have different offerings because that’s what the market wants,” he says. “I’d say that we work together and that we complement each other. Abu Dhabi’s a phone call away. We get a lot of projects that need funding and, in that case, we facilitate a meeting with TwoFour54, which specialises in that. We just like the film to stay within the UAE.”

Still, Al Sharif concedes that Abu Dhabi’s financial incentives give it an advantage when pitching for business. “Abu Dhabi is ahead of us in that they’ve established a very strong platform in supporting and funding films and filmmakers, and with the rebate programme—those are very important components of every film and TV industry and we don’t yet have those things in Dubai.”

As a counterweight to this, Dubai can offer the type of production infrastructure that big studio films often need. When Dubai began building its media infrastructure, a big focus was not just on setting up media companies in Dubai Media City, but in making sure that it became a production hub for the region. One of the first initiatives Al Sharif oversaw was the installation of 18 boutique sound stages, followed by the construction of a major 6,000 square-metre Hollywood-studio-quality soundstage with 14,000 square metres of production space.

As more big Hollywood and Bollywood productions choose to avail of these facilities, the impact on the development of the local film industry is becoming tangible: Al Sharif points to the fact that when *Mission Impossible* was filmed in Dubai in 2010, 70 per cent of the crew was imported. Comparatively, when *Star Trek Beyond* filmed in Dubai in 2015, over 500 of the 700 cast and crew members were UAE residents. “There were South Africans, Latinos, Emiratis, Americans, Brits, Indians, all living and working here and they were part of *Star Trek*—from extras to the sound, lighting and production crew,” Al Sharif says with

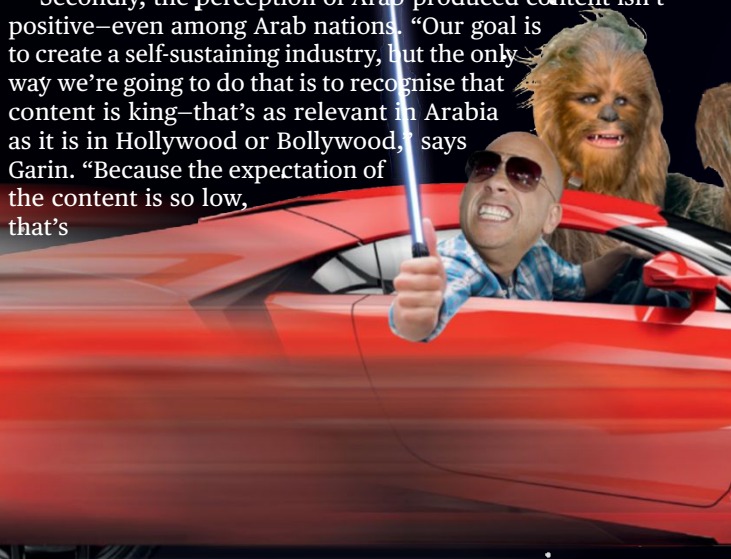
some satisfaction. “I met people who have been living here for 15-20 years who were cast in some pretty lead roles.”

While rubbing shoulders with the Hollywood elite is all well and good, the leading lights in the UAE film business all acknowledge that the industry is still a long way from its ultimate goal—producing its own original, internationally acclaimed, profitable content. A move towards this has come in the form of TwoFour54’s production company, Image Nation. The film house is the content producer for Abu Dhabi Media and, in addition to co-producing Hollywood films, it also supports Arab cinema, bringing Hollywood-level skills to local productions. Image Nation CEO Michael Garin, a 70-year-old Harvard graduate who spent 50 years working in film and television in Los Angeles, is clear about the business’s *raison d’être*. “Let’s be honest: the world doesn’t need another movie company—enough movies are being made in the world,” he says. “The reason Image Nation exists is to diversify the economy and help boost things here.”

Since its inception in 2008, Image Nation has produced or co-produced 34 films, including sci-fi-action blockbusters such as *Men in Black 3*, Oscar-nominated documentaries such as *He Named Me Malala*, social commentary films like *The Help*, and mystery thrillers such as Denzel Washington’s *Flight*. “We have the reverse of most companies: We have lots of financial capital and not as much human capital,” says Garin. “So we invest the money here into outside productions and we bring that back to the UAE.” He says there are two reasons behind this. “One: Everything we produce here still loses money, so we subsidise our local activities with that international work. Two: It gives our Emirati filmmakers opportunities to work with world-class people in the industry. That’s not the primary reason—we wouldn’t be putting money into international films just for that.” A more lofty goal for the company is to offer an outlet for the creative ambitions of the country’s youth. “Young people in the UAE have the same passion for media that young people everywhere do, and if we don’t provide the opportunities for them then they’ll go elsewhere—that’s why Image Nation exists.”

Image Nation—and any other company producing films in the GCC—is losing money on in-country productions for a few reasons. Firstly, there simply aren’t enough cinemas in the region: Saudi Arabia is the largest market in the GCC and has no cinemas, leaving that audience untapped for box office revenue, except when Saudis travel to the UAE for weekend trips. Even expanding the distribution region to include the Arab world generally doesn’t help. Egypt has a thriving cinema scene, but Egyptians typically don’t go to see films that aren’t Egyptian, having been kings of the Arab cinema kingdom historically.

Secondly, the perception of Arab-produced content isn’t positive—even among Arab nations. “Our goal is to create a self-sustaining industry, but the only way we’re going to do that is to recognise that content is king—that’s as relevant in Arabia as it is in Hollywood or Bollywood,” says Garin. “Because the expectation of the content is so low, that’s



"THERE WERE SOUTH AFRICANS, LATINOS, EMIRATIS, AMERICANS, BRITS, INDIANS, ALL LIVING AND WORKING HERE AND THEY WERE PART OF STAR TREK, FROM EXTRAS TO THE SOUND, LIGHTING AND PRODUCTION CREW. I MET PEOPLE WHO HAVE BEEN LIVING HERE FOR 15-20 YEARS WHO WERE CAST IN SOME PRETTY LEAD ROLES"

one of the first things we have to work on. We want to produce things that people want to see."

Despite this, Garin remains confident. "I've done this before, I've built TV channels and built audiences, so Paul [Baker of TwoFour54], Mick [Flannigan of Abu Dhabi Film Commission] and me, we're just following what we've done before. We know the future and how long it takes; it's just getting us on the path."

A big part of that path-finding will come through television with the creation of Quest Arabiya, the first ever pan-Arabic, non-news, non-sports network, which will air to 45 million homes in 22 countries. The channel has been created in a partnership with the US's Discovery Communications creators of The Discovery Channel, The Learning Channel and Animal Planet and producers of some of the most popular factual TV programmes around the world, including *Shark Week*, the Bear Grylls programme *Man vs Wild* and *Blue Planet* (with the BBC). Just launched in December, Quest Arabiya will remake tried and tested Discovery Channel gems for an Arabic audience, filmed on location in Arab countries, as well as producing 40 per cent of its programmes as original content. Garin also reveals that Image Nation is wrapping up filming on a series he describes as "*LA Law* meets *Dallas*, with an Abu Dhabi twist," with the expertise of *NYPD Blue* and *LA Law* veteran Walter Parkes. And for those who think that Arabic-language TV can't gain worldwide popularity, Garin says, they're wrong: "If you're watching a good series, it doesn't matter what language it's in—look at the Danish series that have come out [*The Killing*, *The Bridge*] that attracted a huge audience, and how many people speak Danish out there?"

Beyond this, a second prong of Image Nation's strategy is to make full-length feature films produced in-country, with Emirati and UAE resident directors and crew. Emirati directing has been a thing since the mid-to-early Noughties, when Emirati directors such as Nawaf Al Janahi and Ali Mostafa made films that attracted decent viewing numbers in the Arab world, and even picked up a few nods as official selections at film festivals. But, until now, no Emirati-directed or produced film has been able to attract any significant international interest.

Zinzana, or *Rattle the Cage*, is a genre film in the style of an early Tarantino thriller, replete with kooky music, a protagonist audiences don't like but pity somewhat, and a villain to rival the likes of the ever-killable Bill. The director, Majid Al Ansari, who is already making waves in the film world at the age of 28, had the idea to make a film that was universally adaptable, that could be shot in the Arab world and would be watchable for all audiences, despite being filmed entirely in Arabic.

"I made *Zinzana* because I love genre films, thrillers and fast-paced films and I wanted to show the world that this type of 'Western' film can be done in the Arabic world and done in a way that everyone will watch it." Al

Ansari is a fast talker with an Emirati-American accent (he studied film

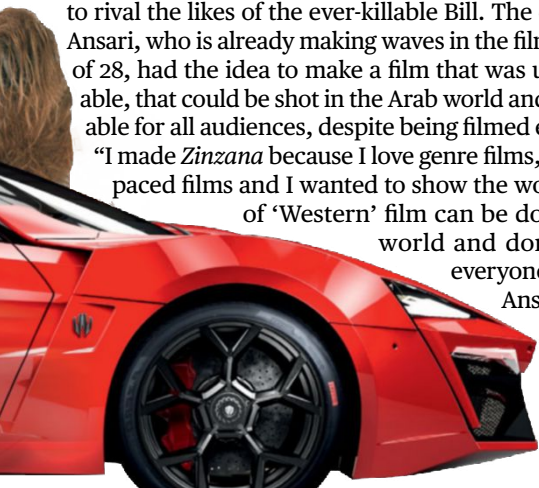
at California State University, Long Beach); everything he says is punctuated by whirlwind hand gestures, raised eyebrows and an air of excitement. He talks about *Zinzana* in the manner of an ingénue who simply can't believe his success. "I was reading scripts to see what my next film could be, read the script [for *Zinzana*] and was so excited. It was so good. So I put together a 70-page business proposal and pitched it to Image Nation and told them, 'I want this.'"

Surprisingly, the script was written by American husband and wife screenwriting duo Lane and Ruckus Skye from Atlanta, Georgia, and originally had a strong Southern-fried flavour to it. "It's full of colloquialisms and culture specific to the Southern United States, so it was an interesting proposition having our script picked up by an Emirati director," says Ruckus. "At its heart, it's a story about family, which is a universal theme. The director knew that and knew it would translate well." Debuting internationally at Fantastic Fest in Texas, and then in the UAE at Dubai Film Festival, *Zinzana* is about a man who's let his family down and lost his way. Set entirely in a jail in the middle of nowhere, it pits a down-on-his luck anti-hero against a super-villain of epic proportions.

The film has, since its 10 December cinema debut, garnered a solid 7.7 out of 10 stars on the Internet Movie Database (IMDB) and is still awaiting its full debut, which will be in 30 countries worldwide, with two major studios showing interest in distribution deals. Locally, the film has been championed by VOX Cinemas, a homegrown UAE chain, which is helping with distribution. But taking it down to reel numbers, *Zinzana*, like most productions made locally, may not make big bucks, says Al Ansari.

According to industry experts, that's just where the very young UAE market is at the moment. Tracey Grant, a Dubai-based digital media and broadcast analyst for International Data Corporation (IDC), says that traditionally the storylines that are the cornerstones of Arab films (war, political injustice, family betrayals) are not storylines that have translated into huge commercial success outside the Arab world. "The MENA region is

"SO TAKEN ALL TOGETHER, THE UAE HAS NOW BECOME THE SHINING STAR IN MENA TO ATTRACT MAJOR FILMS. ABU DHABI DID STAR WARS, FAST AND FURIOUS, DUBAI HAS BROUGHT IN MISSION IMPOSSIBLE, BOURNE LEGACY, STAR TREK, JACKIE CHAN'S LATEST FILMS AND BOTH OF US HAVE DONE SOME MAJOR BOLLYWOOD FILMS"



"LET'S BE HONEST: THE WORLD DOESN'T NEED ANOTHER MOVIE COMPANY - ENOUGH MOVIES ARE BEING MADE IN THE WORLD - THE REASON IMAGE NATION EXISTS IS TO DIVERSIFY THE ECONOMY AND HELP BOOST THINGS HERE"

yet to produce a truly huge blockbuster movie that has garnered broad appeal, which has resulted in the industry as a whole being unsure which way to turn and where to place its money."

Despite its positive reception, Al Ansari is realistic about his most successful project to date. "That was the point of *Zinzana*—even if it doesn't make any money, I think what we want to do is grow with each film: One film gets some bums in seats at the cinema, one film gets more, the next one gets more," he says. "The only thing that's stopping the UAE film industry right now—actually, I don't want to call it an industry yet, it's a movement with big potential—our only obstacle is people going to the cinema; it's revenue." He appreciates that the umbilical cord of public finance will be cut eventually and the only way to survive that is to make productions profitable. "We need to veer off from government to private businesses and to get private investors interested in our films," he says. "But we can't do that until we can show we can get bums on seats."

If *Zinzana* does turn a profit, however small, it will mark a big step in the right direction for TwoFour54 and Image Nation's ambition. The reaching of such a milestone is vital to the industry's future, says TwoFour54's Al Kaabi. "The goal is to be commercially successful, to make money and to be sustainable," she says Al Kaabi. "Otherwise the government asks, 'Why am I diversifying the economy with this media plan if you're not making money?'"

As is often the case in other industries, the biggest money-maker—in terms of content for filmmakers in the UAE (including TwoFour54)—is the least glamorous product. Creating commercials, promo spots, training and corporate videos, which are smaller production pieces but with higher commercial returns, is bread and butter work in the UAE. Shane Martin, who moved from Ireland via London to open up the Dubai branch of his production company, Boomtown Productions, has made his living producing commercials, branded content and more. With 16 full-time employees and operating there since 2003, Martin has seen the industry open up since TwoFour54's inception, and says that the greatest work the organisation is doing is in diversifying the market. "Previously, there was a smaller production talent- and crew-base in the region," he says. "The quality production expertise that existed had grown out of the commercials production industry; there had never been any real, sustainable quality feature film or TV work for local producers and crew to depend on. It has taken a while for the local industry to adapt

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to feature and long-form production, but things are improving."

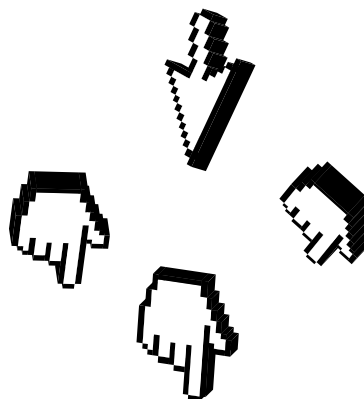
This gradual development of local talent is the only way that the UAE film industry can eventually take the big leap away from government-led investment, according to Michelle Nickelson of MENA CineFinance, a consultant group which facilitates media investments and acquisitions. She says that most investment companies and high-net worth individuals in the UAE who want to invest in the film industry are not interested in investing in local films. "That's why what they're doing at TwoFour54 and Image Nation and the Dubai Film & TV Commission is so useful, because you have to incubate the local film makers to be able to get to the right level," she says. "The next step for the industry is that more companies, particularly SMEs, have to be created. [The industry] is coming online now, but until it's self sustaining as far as entrepreneurs, I don't see it making any money."

When it comes to SMEs, there are a few success stories that hint at a bright future: Emirati filmmaker Afra Al Marar is a genuine TwoFour54 triumph. After finishing her Media Studies degree, Al Marar interned with TwoFour54, working with Hollywood giants such as James Cameron, Richard Gere, and top execs at Warner Brothers. She went on to freelance for the company, where she met Al Kaabi and realised that in Abu Dhabi, gender was no barrier to success. In early 2015, Al Marar opened Toaster Productions, a boutique production company with four full-time employees. The company now produces two TV programmes for Arabic-language channel Baytounah TV and has several more short-form projects in the pipeline. Al Marar's next ambition is to tackle a seven-season TV series. Like many who enter the creative industries, particularly in the Middle East, Al Marar has had to overcome doubts from those closest to her since the outset. "When I told my father I wanted to study media, he said, 'Ok, do it, but then don't work,'" she says.

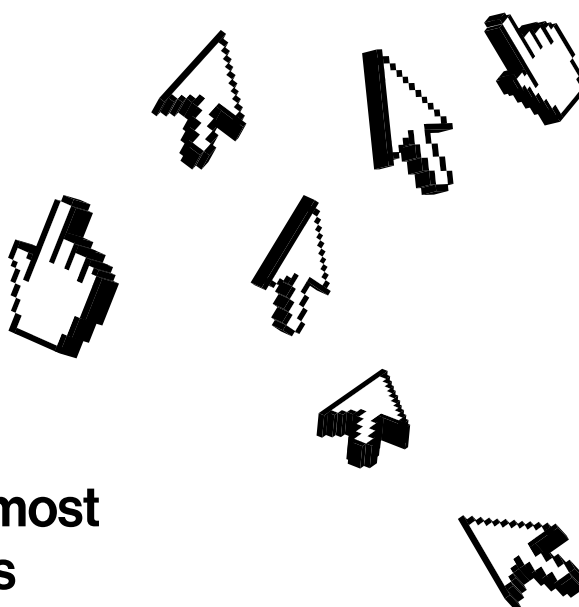
With people like Al Marar beginning to shape the local industry, films like *Zinzana* showing the next generation that quality, original content can be produced in the UAE, and powerful figures like Al Kaabi inspiring both girls and boys alike, most experts predict that the UAE should have a fully formed industry by 2030 at the latest. "The UAE film industry works because of its willingness and strategy to take the best of breed in any area of the world and partner them with local people to bring a truly fantastic product," says Image Nation's Garin.

The next steps, he says, are to focus on Video-on-Demand services and new revenue models such as Netflix (set to debut in the Middle East by the end of 2016) and Shahid, currently the leading VOD website in the region. "VOD is a great money-maker but ultimately, like any media channel, it's a word-of-mouth business and if you don't have a lot of mouths, then it's a moot point. Every weekend in Abu Dhabi, there are at least four Hollywood movies and a few Bollywood films to see—they're not going to invest that money and time in the cinema seeing an Arab film unless they know Arab filmmakers are producing amazing content."

The challenge is "not only to train and educate filmmakers, but we have an equal challenge in educating audiences," Garin says. "Because they're not going to believe it by reading an article in *Businessweek*; they're going to believe it when all of their friends share it on social media." **E**



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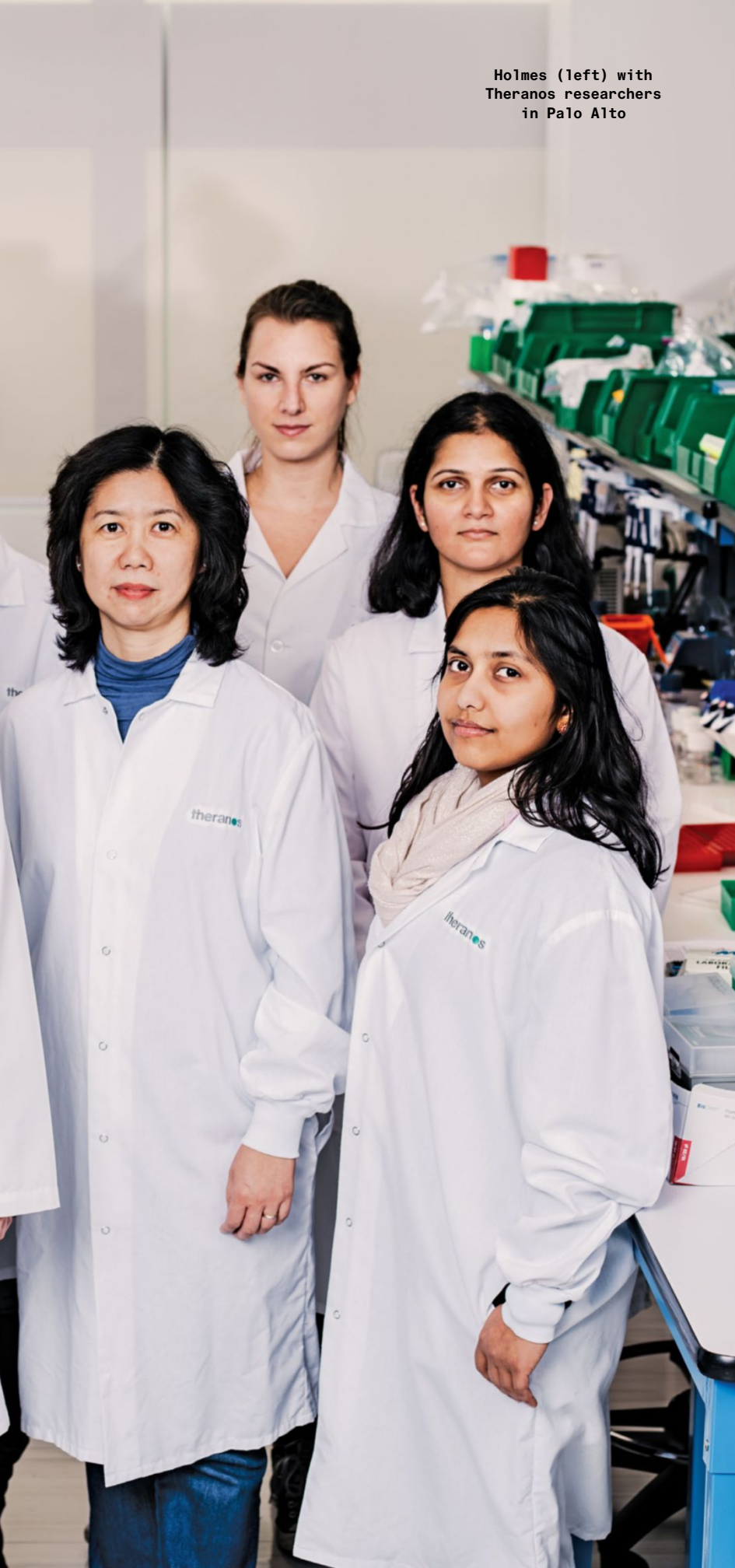
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Holmes (left) with
Theranos researchers
in Palo Alto



THERANOS CEO ELIZABETH HOLMES TRIES TO TAKE HER COMPANY OUT OF THE CROSSHAIRS

BY SHEELAH KOLHATKAR
AND CAROLINE CHEN
PHOTOGRAPH BY
BENJAMIN RASMUSSEN

Elizabeth Holmes rarely slips out of character. When she responds to questions in an interview or on a conference stage, she leans forward, leg crossed ankle over knee in a half-lotus manspread power pose. She lowers her voice an octave or two, as if she's plumbing the depths of the human vocal cord. Although she hates it being remarked upon, her clothing, a disciplined all-black ensemble of flat shoes, slacks, turtleneck, and blazer buttoned at the waist, is impossible not to notice. She adopted this uniform, as she calls it, in 2003, when she founded Theranos, a company seeking to revolutionise the medical diagnostics industry by doing tests using only a few drops of blood.

"I wanted the focus to be on my work," she says slowly and deliberately. "I don't want to go into a meeting and have people looking at what I'm wearing. I want them listening to what I'm saying. And I want them to be looking at what we do." She pauses, then adds, "Because when you walk into the room and you're a 19-year-old girl, people interact with you in a certain way."

All the same, Holmes says, she wasn't prepared for how eager people would be to tear her down. "Until [October], I didn't understand what it means to be a woman in this space," she says, shaking her head. "Every article starting with, 'A young woman.' Right? Someone came up to me the other day, and they were like, 'I have never read an article about Mark Zuckerberg that starts with 'A young man.'"

Holmes, now 31, is sitting in her office. The surfaces are curved and gleaming, and the giant, orblike light fixtures seem to have been taken from the *Starship Enterprise* as reimagined by Jean Nouvel. The windows offer panoramic views of the flora of Palo Alto, where Holmes has become one of the most obsessed-over entrepreneurs in Silicon Valley. Partly this is a result of her ambition to make getting a blood test as fast and as simple as checking your bank account balance. If Theranos succeeds, Holmes says, anyone, anywhere, could have access to information about their



health and risk of disease anytime they want, without a prescription. Theranos does that, she says, with as little as a finger prick's worth of blood, a much smaller amount than traditional blood tests, and at a fraction of the cost. Theranos charges from \$2.67 for a glucose test to \$59.95 for a range of sexually transmitted diseases and posts all of its prices online, a level of transparency no traditional lab company matches. Holmes says her company can conduct reliable testing for 50 per cent to 80 per cent less than Medicare reimbursement rates, which could lead to astonishing cost savings. She estimates that \$2.2 billion would be saved each year in Arizona alone, where the company has a presence in 40 Walgreens pharmacies.

The Theranos story has also been amplified by its \$9 billion valuation, based on its venture capital funding, as well as by the roster of powerful board members (Henry Kissinger, William Perry) and public supporters (Marc Andreessen, among others) Holmes has gathered around her. But Holmes herself is as much a source of fascination as her company. She has just the right mixture of boldness and precocity that Silicon Valley loves. She was only too willing to let that propel her through the business media's star chamber, though she refused to let photographers use a wind machine to blow her hair.

On a typical day, Holmes would be overseeing Theranos's 1,000 or so employees, but on this afternoon in late November she's under siege. In her office, she's joined by Theranos's general counsel and a newly retained public-relations crisis expert who monitors every tic and utterance. An aide silently enters the room and hands Holmes a cup of green liquid, which contains coconut water and kale, along with other organic extractions. Stacks of paperwork, test data, and US Food and Drug Administration applications sit on the table in front of her, all intended to prove that Theranos's products work as she says they do.

After several years of Holmes telling the largely unchallenged story of how Theranos intends to change the world, a blast of cold air came on 15 October, when the *Wall Street Journal* published the result of a five-month investigation by

John Carreyrou. The piece reported that as of the end of 2014, Theranos wasn't using its own products and technology to analyse most of the tests it was conducting for consumers. Former employees, the article further reported, claimed Theranos was cheating on routine proficiency tests, which help federal regulators determine if a particular lab is producing accurate results. The implication was that Theranos's technology was largely a charade. A series of similarly critical articles followed. Bloomberg News reported that some Theranos partners that had signed deals with the company, including AmeriHealth Caritas and Intermountain Healthcare, hadn't actually started using the technology yet. The bright-eyed woman the media had clambered over themselves to mythologise was now being picked apart.

On its website, Theranos denied the accusations, then went about trying to find people who could come to its defence. "Here's what happens every time I have a huge winner," says Tim

"IF IT DOES NOT WORK, CAN WE TWEAK IT UNTIL IT DOES WORK? ... THERE ARE MILLIONS OF PEOPLE OUT THERE WHO NEED THIS TO WORK"

Draper, founding partner of venture capital firm DFJ and a Holmes loyalist whose \$1 million investment made Theranos's incubation possible. "The first thing that happens is that the competition sort of pooh-poohs it. Then the next thing that happens is they go, 'Uh-oh, this is threatening our business.' ... She's opened the kimono, and it's scaring the pants off the competition."

To the entrenched members of the

lab testing industry, Theranos's plans sound like an existential threat, and perhaps an absurd proposition. Critics and sceptics have been coming forward, suggesting that what the company says it's doing is impossible—or, just as bad, that what it's doing right now isn't that different from its old-school competitors. The story may have resonated beyond the medical world because the stakes feel huge, much bigger than the success of one company. The tech industry is in the midst of another boom or bubble, depending on whom you ask. If Theranos, one of the hottest businesses around, isn't quite what it says it is and venture capitalists are potentially out hundreds of millions of dollars, it stands to reason that other companies are overvalued, too.

The solution, Holmes says, is less talk and more action that proves the company can back up all its claims. "What we need to do now is focus on the technology and focus on the science and the data and put that out there," she says. "Because that speaks for itself."

Theranos's "nanotainer" is the most obviously different component of its technology. It's a tiny vial about the size of a firefly that collects a few drops of blood from the prick of a fingertip. Theranos has said that from those minuscule samples it can test for hundreds of diseases and conditions. The company also makes an extra-small needle that goes into a person's arm in a more conventional fashion, although it draws a smaller amount of blood than traditional needles. Finally, it makes the Theranos sample processing unit, or TSPU, a black machine about the size of a printer that acts as a multipurpose blood analyser. Samples obtained by either method are dropped into a cartridge that goes into a slot in the TSPU like a VHS tape into a player. The cartridge contains software programmed to run the desired test—for pregnancy hormones, blood sugar, potassium levels, whatever the patient wants—using the company's own chemical processes. Or at least that's the idea.

The potential for this to change healthcare is significant. Holmes cites the example of premature babies in hospital neonatal intensive care units, who have to have blood drawn for routine tests every day. Because the babies are so small, she says, sometimes fitting into the palm of one hand, taking multiple vials of blood from them means they need constant transfusions. Running the tests using only a few droplets would save some of the most vulnerable people on earth from a great deal of trauma.

BOIES: ANDY KROPA/VISION/AP PHOTO; KOVACEVICH: MICHAEL MALONE/VSAN FRANCISCO CHRONICLE; POLARIS: ANDREW HARRIS/EL COMBERG; FOGIE: HUMANOIDS/REX; NUNN: SCOTT OLSON/GETTY IMAGES; BECHTEL: EVAN AGOSTINI/AP PHOTO; MATTIS: COURTESY US CENTRAL COMMAND; COSGROVE: COURTESY CLEVELAND CLINIC; PERRY: COURTESY STANFORD; KISSINGER: ANTHONY BEHAR/USA; ROBERTSON: COURTESY STANFORD; COURTNEY: KIMBERLY WHITE/GETTY IMAGES

Theranos's low prices could possibly transform the way medical care is approached altogether, according to at least one doctor who's looked at the company closely. Dr. Waldo Concepcion, the chief of clinical transplantation surgery at Stanford University Medical Center, spends most of his time performing kidney transplants on children, a procedure he believes is often preventable. If many of the patients he sees had learned they were at risk of renal failure earlier, they could have changed their diet and lifestyle and avoided ending up on his operating table as teenagers. Theranos's promise of low-cost testing, he says, would open doors to low-income patients.

"We can't focus with the dollars we have in health-care just on diseases," he says. Concepcion, who's just signed on as medical consultant for Theranos, had thrown a tweed jacket on over his scrubs and raced from the hospital to Theranos's offices to make his point. "We have to focus on preventive health. We spend all of the money at the top of the pyramid, when we need to focus it down here," he says, drawing a triangle in the air in front of him.

Of all the advisers *Bloomberg Businessweek* interviewed, Concepcion was the most candid in saying the tests' accuracy isn't yet guaranteed. Based on the data he's seen, though, he says he's "encouraged" that the technology is feasible. The first step is, "Does it work?" he says. "And if it does not work, can we tweak it until it does work?"

He's working with the company to set up a real-world academic study, comparing finger-prick tests against traditional venous draws in hospitals, to prove "once and for all" that the technology fulfils its promises. If it isn't perfect, he says, the solution isn't to pile on Theranos. It just means the company needs to work harder. He adds: "There are millions of people out there who need this to work."

Theranos first entered the public consciousness in 2013, when it announced a partnership with Walgreens. Before that, Holmes and her company had been working away for 10 years, hiring scientists and building prototypes, almost entirely in secret. Competitive paranoia reigns in most technology industries,

and as a private company, there was no reason for Theranos to advertise what it was doing or how it was doing it. Once the company settled on a plan to sell testing directly to consumers, it had to put itself out there and become a brand that patients would recognise. The company lobbied the Arizona State Legislature to make it legal for individuals to order lab tests without a prescription. Theranos started introducing its "wellness centres" inside Phoenix-area Walgreens stores, where patients can get tests done, with or without a doctor's order.

The idea, Holmes says, is for the experience of having a blood test to be "wonderful," rather than like visiting a medieval torture chamber. The centres feature high-definition video screens that play undulating concentric patterns that can also be seen on display around Theranos headquarters. "In mathematics there's a term called the golden ratio," Holmes says, explaining that it can be


found in seashells and tree trunks or da Vinci's *Vitruvian Man*. "That ratio is the foundation of our logo, which is the circle, which is the simplest form of what's called the flower of life."

Eventually, the company and its backers hope to bring the Theranos concept to the rest of the country. "When you're getting your blood test, it needs to be cool," she says. "We're in the retail business. People need to be able to go in and have an experience and be like, 'That was awesome.'"

But Theranos isn't running a restaurant or providing taxi rides. It's providing a medical service, and a good customer experience alone isn't going to make the company viable. It has to work with the FDA, which is trying to increase its oversight of the medical testing industry. Even by the federal government's bureaucratic standards, regulation in the business has been complex and inconsistent.

Most blood work in the US is run on analyser machines made by companies such as Siemens, Roche

FANBOYS

-  = BOARD MEMBER
-  = INVESTOR
-  = PUBLIC SUPPORTER



DAVID BOIES
Chairman of Boies,
Schiller & Flexner,
former counsel to Al Gore



RICHARD KOVACEVICH
Former CEO of
Wells Fargo



GARY ROUGHEAD
Retired US Navy
admiral, board member
of Northrop Grumman



LARRY ELLISON
Oracle executive
chairman, billion-
aire, investor



DR. WILLIAM FRIST
Former Senate majority
leader, heart and lung
transplant surgeon



GEORGE SHULTZ
Secretary of State for
Reagan, Secretary of
the Treasury for Nixon



WILLIAM FOGIE
Epidemiologist, former
director of the CDC



DONALD LUCAS
Venture capitalist



SAM NUNN
Former senator,
current CEO of Nuclear
Threat Initiative



RILEY BECHTEL
Billionaire,
chairman of the board
of Bechtel Group



JAMES MATTIS
Retired Marine Corps
general



DR. DELOS COSGROVE
CEO of the Cleveland
Clinic



WILLIAM PERRY
Secretary of Defense
under Clinton



HENRY KISSINGER
Secretary of State,
winner of the Nobel
Peace Prize



CHANNING ROBERTSON
Emeritus Stanford
professor, now a
Theranos adviser



MARC ANDREESSEN
Founder of VC firm
Andreessen Horowitz

Diagnostics, and Olympus. The labs that buy these machines don't need the FDA's OK to use them, but the manufacturers need it to sell them. Siemens and the others are required to submit data to the agency showing that the tests running on the machines are safe and accurate.

Theranos has had certification from the Centers for Medicare and Medicaid Services to operate its labs since 2011. Because it wasn't selling its devices or any other equipment to third parties, the company technically didn't need FDA approval for its tests. Holmes says she wanted to seek it anyway, because she considers the FDA's to be the "gold standard" of regulatory approvals. Theranos submitted its first test, for herpes, to the FDA in 2013, and it was cleared this past July.

In the meantime, the FDA has determined that the nanotainer is a Class II medical device, meaning it must be cleared if Theranos wants to use it with any test other than the herpes test, according to the agency. The company says it's submitted data that show test results on blood collected from fingertips into the nanotainer are the same as those obtained with larger samples taken through a vein. While the company waits for the FDA to clear the nanotainer, it has stopped doing finger-prick draws for all its customers, except for those getting only the herpes test, because the FDA had approved the use of the nanotainer for that specific use.

The FDA doesn't consider the analyser, or TSPU, to be an element that needs to be approved on its own. But if Theranos submits a test to the agency for clearance, the TSPU, as a component of the test, will be reviewed in the process. "Theranos has cleared one test, HSV1, [aka herpes] for use with the TSPU," FDA spokesman Eric Pahon confirms. "If other tests subject to premarket review were intended to be used with the TSPU, additional clearance or approval would be required."

The FDA has recently said it wants to regulate so-called laboratory-developed tests, but that isn't a policy yet. Theranos says it's voluntarily submitting 120 applications for individual tests that run on its analyser.

All of this puts Theranos in an awkward situation. The company has to show that it's using its own technology somehow—the whole promise of Theranos's multibillion-dollar valuation is that its technology is exponentially cheaper and easier to use than that of existing players, and not just for one herpes test. On the other hand, if Holmes wants to hold her

company to the FDA's higher standards, as she claims, that means waiting for federal clearance on all of its tests before using them. While Theranos works its way through this transition period, it is unclear whether the company is running any tests on its own machines at all.

Holmes refuses to answer the question. When asked if Theranos is actually running any patient samples on its own analysers today, as opposed to devices made by Siemens or another manufacturer, she will only say, "We can run them on our analyser, but it depends on the test order."

A few days later, when she's asked again, her response is still noncommittal: "Depending on the order, it can happen on the TSPU, with our chemistries, and it can happen on conventional machines, just using traditional venous draw." It can. But is it? She points out that other labs don't publish such information, which is true. But then, other labs don't usually declare themselves medical revolutionaries.

FDA clearance alone may not be enough to convince physicians that the tests can be used for all patients, according to John Ioannidis, a professor of medicine at Stanford who's

increased focus on diagnostic tests is welcome, the agency has less experience in reviewing tests than drugs, he says, and its applications don't give as many details as doctors would like to see.

To Ioannidis, only a peer-reviewed journal article that lays out the full methodology and inner workings of the Theranos technology can answer these questions in a satisfactory manner. The company has said it hasn't done this, so far, out of concerns that its proprietary technology could be copied by competitors. Ioannidis responds by saying, "This is what patents are for. They should make sure they have patent protections. We need to have evidence in the scientific literature to scrutinise what they do."

Other experts echo his point. "Typically companies will show their product at a professional meeting, talk about it, their scientist will present

data. Theranos has chosen not to do that, which in my mind is dubious," says David Koch, president of the American Association for Clinical Chemistry and a professor at Emory University. "That's why a number of us scientists in the field are sceptical. Why be so secretive about it? If it works,

tell the world and we'll use it."

Again, Theranos isn't the only diagnostic company to provide scant details on its technology. "The process has been suboptimal across the industry, but now I think we're at the crossroads," Ioannidis says. "Theranos caught my attention early on because they had such vibrant media stories. Other companies just don't make such claims. Today it's Theranos. Tomorrow it may be another company." He adds: "If you get the wrong test result, you could go down a path that could really destroy your life."

Holmes says the company's era of secrecy is over, and it's inviting outsiders, including reporters, to try the tests for themselves. (For the record, the finger prick feels like a finger prick.) In December, she says, a group of independent medical experts will spend two days in Theranos's lab to examine the technology, the data, and the regulatory filings, and can then talk publicly about what they found. The Cleveland Clinic is running a study comparing Theranos's results with traditional blood draws

The half-inch-tall nanotainer



The TSPU blood analyser

best known for his criticism of the way scientific research is conducted, in particular for a 2005 paper titled "Why Most Published Research Findings Are False." In February he authored an opinion piece in the *Journal of the American Medical Association* questioning Theranos's lack of published data.

When it comes to "tests that may be more complicated, the level of reporting for FDA clearance won't be enough," says Ioannidis. While the FDA's

and will publish the findings. Holmes is also putting together a medical advisory board that will bring more scientific and regulatory expertise. She says Theranos is preparing “manuscripts” containing the testing data that’s been submitted to the FDA, which it plans to publish in a medical journal (she won’t say when or which journal). Its main competitors, Quest and LabCorp, have done no such thing, she points out.

According to Holmes, all the recent negative attention has acted as free advertising, and walk-ins at Theranos’s wellness centres in Arizona are up. “I mean, is it incredibly painful to see people say this kind of stuff about us? Of

in. She soon impressed him. “I think there are people who are the Mozarts and the Beethovens and the Newtons, the Lavoisiers and the Einsteins and the da Vincis, who come along rarely in a generational sense,” he says. “These people who become scientists and artists and musicians, I think, possess a very special capability. It was becoming more and more clear to me that she had it. I was in the presence of somebody who was unlike anything that I had seen before.” Other members of the Elizabeth Holmes fan club include David Boies, the acclaimed lawyer; former Senate Majority Leader William Frist; and former Secretary of State George Shultz, all of whom are on Theranos’s board.

As scores of articles have recounted, Holmes dropped out of college in her sophomore year to file her patent and start her company with two former members of Robertson’s lab. Robertson became Theranos’s adviser and helped her raise money.

Draper, the venture capitalist and early Theranos investor, says he’s known Holmes since she was 6 years old and a friend of his daughter. When she decided to start her company, she approached him. He called her parents to make sure they were OK

with her plan to drop out of school. Then he gave her \$1 million.

Holmes, brainy as she is, lacked formal scientific training. She made up for it with her messianic passion and ability to persuade people to join her cause. “We needed really good chemists. We needed really good biologists. We needed really good enzymologists, really good biochemists,” Robertson says. “I mean, it was sort of like *Ocean’s 11*. I would call some of my buddies that I’d worked with in previous companies and drag them down out of the hills and say, ‘You know, let’s try one more time.’”

Despite the current controversies around Theranos, Robertson stands by his former student. “She’s as astute as she ever was. She’s as charming as she ever was,” he says. “She is one of the sweetest people I know.” He declined to comment on the company’s marketing claims or business model, saying he was never involved on the business side of things. But he vigorously refuted

any allegations that Theranos’s tests may be inaccurate.

“On the precision and accuracy issue, that is our holy grail,” he says. “We would have to be certifiable, you know, to go out and put out a product that people’s lives are going to depend on. That’s not who we are.”

While Draper isn’t a board member or official adviser, he says he sees Holmes frequently. He’s puzzled by Theranos’s troubles and wasn’t aware the company isn’t currently using its famed nanotainer for anything but a herpes test. The idea of pausing the relentless push forward to wait for fusty government approvals doesn’t seem to make sense to one of the investors in Twitter and Skype. “So they’re going to have to go through each one of those tests before they can even use the nanotainer?” he says, sounding horrified. “You can run tests; you just say they are not FDA-approved,” Draper continues, referring to the nanotainer. “If that’s not the way it’s happening, I’m definitely going to give Elizabeth a call about this.” He pauses the interview to pull out his phone.

“I would think they can still use the nanotainer and just have some wording,” he says, typing out a text message to Holmes. “I would think you just put a little warning label on the thing and say the FDA has not agreed to the accuracy of these things.”

Another adviser and board member, Richard Kovacevich, a former CEO of Wells Fargo, says some of the bumps Theranos has encountered are specific to private companies, which aren’t usually prepared to deal with such intense public criticism. Responding to a situation like this, “you need speed, you need evidence, it’s a full-court press,” he says. Theranos “doesn’t have the infrastructure to respond, in a way, and so that probably led people to think, ‘Oh God, there must be some truth to this.’ It’s been behind, in my opinion, up until lately, in refuting the allegations and not focusing on test results.”

Holmes vows to keep up the fight. She decided when she was a teenager that she was willing to sacrifice everything for her calling. She has no personal life to speak of. She doesn’t watch movies or read books. She used to run but mostly gave it up. When she started her company, she says, she researched diet and nutrition and monitored her blood chemistry. She determined that a vegan, macrobiotic lifestyle would allow her to “train” her body to work all the time and to function on very little sleep, like an android. “After a while you just get so deep into it,” she says. “In the normal sense, I could take a vacation, but this is where I want to be.” **E**

“WHY BE SO ~~SECRETIVE~~ ABOUT IT? IF IT WORKS, TELL THE WORLD AND WE’LL USE IT”

course it is,” she says. “But is it a crisis? No. We’ve built something that’s incredible, and we have now the opportunity to showcase it.”

In Silicon Valley, bankers like to call startups that surpass \$1 billion in valuation “unicorns.” Airbnb, Uber, Pinterest, Snapchat, and Zenefits all fall into the category. It’s quite possible for one of these flush startups to sustain damage and recover. Both Airbnb and Uber have weathered scandals with their unicorn-hood intact. Theranos could prove all the naysayers wrong.

Holmes certainly has plenty of true believers in her corner. From the moment she got to Stanford, in 2002, she demonstrated a talent for cultivating powerful mentors, beginning with an engineering professor named Channing Robertson. He didn’t need an undergrad, much less a freshman, working in his lab, but Holmes basically squatted outside his office until he let her

Profiting From

50



Poor Africans



M-Kopa
plans to be
a \$1 billion
company
by selling
solar
panels
to rural
residents—
and
providing
them with
credit

By
Stephan
Faris

Photographs
by Sven Torfinn

Om Opiyo is the best-performing salesperson at M-Kopa Solar, a Kenyan company selling solar power systems to the very poor. Watching him work, it's not hard to see why. Opiyo is a pastor who used to be a musician and concert promoter, and when he's closing a sale he never stops talking. "The electric company can sometimes leave you in the dark. With M-Kopa, the light cannot go out," he tells a group of 15 potential customers gathered under a tree in a rural area in western Kenya on a sunny October afternoon. "If you get power from the power company, you will always be paying. But when you buy M-Kopa, it's yours forever."

Opiyo is tall and thin, with a closely shaved head he keeps shaded under an M-Kopa baseball cap. He infuses his pitch with quotes from the Bible and brings in an actor to break the ice with impersonations of famous Kenyan politicians. But his underlying argument is financial. Before demonstrating his product, Opiyo walks the group through a calculation, asking how much each person spends a week on kerosene. He works out what

that adds up to over the course of a year and then totals a sum for the entire group. "I show them the cost of what they are using compared to what I'm going to give them," Opiyo says. "If you bring this to their minds, they can see how they are foolish, and then you know they are going to buy."

M-Kopa estimates that 80 per cent of its customers live on less than \$2 a day. Three-quarters of them rely on small-scale farming as their primary or secondary source of income; the rest run small businesses. Energy accounts for a significant amount of their spending. The company's power system costs \$200: It includes a solar panel, two LED bulbs, an LED flashlight, a rechargeable radio, and adaptors for charging a phone. The kit comes with a two-year warranty, and its battery is designed to last at least four years.

The company's core innovation has less to do with its physical product than the method it has developed to make it affordable. *Kopa* means "to borrow" in Swahili, and each system the company sells is in effect a loan of about \$165. Clients pay \$35 upfront and agree to make a daily payment of 45¢ for a year, after which the system is theirs. The kits come with a control box containing the battery and a SIM card that can communicate with M-Kopa headquarters in Nairobi. When a customer has made a payment via mobile phone, the SIM card sends a signal to activate the battery, which is powered by the panels. "If you boil it down, what we are is a finance company," says Nick Hughes, M-Kopa's strategy director and one of its founders. "What we've done is to give the customers some collateral and a line of credit."

Hughes, an Englishman, and his Canadian co-founder,



A food vendor in Kisumu cooking by solar-powered light



A Nairobi schoolgirl studying at night

Jesse Moore, first discussed working together in 2009. Hughes is a former executive at Vodafone, the British telecommunications company, and Moore was working for the GSMA Development Fund, a mobile telecommunications industry group, where he was in charge of identifying opportunities to make mobile services available to people in developing countries.

Hughes and Moore had three criteria for the company they wanted to build: It had to involve mobile technology, an area in which they both had experience; it had to solve what they called “a massive pain point” for the very poor; and they had to believe it would one day become a billion-dollar business. “The point is, if you’re going to start something, make sure it can be huge,” says Moore, now the company’s managing director. The duo ran three pilot projects, including mobile phone savings and loan accounts in Kenya and a healthcare hotline in India, before settling on solar power and founding M-Kopa in 2011.

The company says that, just as mobile phones reached areas landlines couldn’t and electronic money introduced banking services into what had been a predominantly cash economy, M-Kopa’s solar systems eventually can provide clean, renewable power to millions of customers for whom affordable electricity has remained out of reach. “We think it’s possible to build a business with no trade-offs,” Moore says. “We can benefit the environment. Our customers will be better off. And we’ll get richer. We all can win.”

In Kenya, having a telephone was once a privilege of the elite. In 2002 just 1 adult in 10 owned a mobile, according to the Pew Research Center. In 2007 the Kenyan mobile operator Safaricom launched a service

called M-Pesa, allowing customers to use a phone to send cash. Originally intended as a way to help micro-finance borrowers make and repay loans, M-Pesa was rapidly adopted for everything from salaries to taxi rides, bringing banking to people who were miles from physical bank branches. Today about a third of the Kenyan economy flits across Safaricom’s airwaves, and 82 per cent of Kenyan adults have a mobile phone. Signs of the mobile revolution are everywhere in Kisumu, the city in western Kenya from which Opiyo, the salesperson, operates. Roadside stands selling snacks and sodas flank tin-roofed kiosks offering SIM cards, airtime, or the possibility of loading cash onto a mobile account. Slogans hand-painted on concrete buildings hawk the power of the Internet in the service of selling smartphones: “Take Google With You” and “You Are Not on Facebook?”

M-Kopa’s executives hope to accomplish a similar technological leapfrogging with their solar power kits. It was Hughes, when he was an executive at Vodafone—which owns 40 per cent of Safaricom—who first came up with the idea that would become M-Pesa. M-Kopa’s director of operations, Pauline Vaughan, was in charge of the mobile-money service during its early years. African economies, they say, have the potential to turn their underdevelopment into an advantage by adopting technologies that would have to displace entrenched incumbents in richer parts of the world. “One of the defining characteristics of leapfrogging is rapid uptake,” Vaughan says. “In the best cases, leapfrogging has the potential to advance you, as well as help you catch up.”

The technology M-Kopa wants to replace is ancient: kerosene. Many of the lamps used in Kenya would be recognisable to the Romans—small flames flickering in the wind, emitting an acrid smoke that burns the

“We know that it’s important for them to keep their lights on at night, so they can be counted on to keep paying”



An M-Pesa agent in Kisumu helping a customer (top); Moore with Opiyo, right, and other staff in M-Kopa's Kisumu office

eyes, irritates the throat, and slowly turns walls and ceilings black. It's also expensive. According to a 2014 survey, an average off-grid household in Kenya spends about 75¢ a day on energy, or \$272 a year—\$164 on kerosene, \$36 on charging their mobile phone, and \$72 on batteries. M-Kopa estimates a customer saves about \$750 over the first four years by switching to its basic solar kit.

The interest M-Kopa charges is high by US or European standards. The cash price of one of its products is about 20 per cent less than the instalment price. But in the markets where the company's working—so far, Kenya, Tanzania, and Uganda—the rates are competitive. Traditional microfinance companies typically charge about 20 per cent interest on their loans, and in October the Kenyan government issued treasury bills that offered investors a 23 per cent annual return.

Once M-Kopa has a customer, it works hard to sell him more products on instalment. "Your anchor product is clean energy, and then you build a finance relationship," Hughes says. A couple of weeks before the solar system is paid off, an M-Kopa representative calls to offer another product, in exchange for reopening the account and making payments for another few months. Ideally, these too will save the customer money over time: fuel-efficient stoves that spare charcoal, a bicycle that cuts transportation costs, a tank that stores rainwater. M-Kopa also sells Samsung smartphones and offers loans to pay for school fees. About a quarter of those who pay off their first purchase move on to others, the company says.

Felix Omondi Ogutu, 36, bought his solar kit in 2012 after hearing about it on the radio on a bus ride from a rural area into Kisumu, where he was studying information technology. After paying off his system, he extended his payment period in exchange for a smartphone. "This phone was like a dream to me," he says. "I longed to get an opportunity to get an Android OS. It would have been difficult for me to buy, but because it was in instalments, I could pay bit by bit without feeling the economic heat."

Ogutu, who finished his exams in April, works at a charity that helps the elderly. He uses his smartphone to run a sort of mobile Internet cafe, helping local businesses fill out their taxes online and offering his neighbours a chance to read and write e-mail. He estimates that in an average month, he makes \$40 from the service—more than the \$15 he pays M-Kopa. "My work has been made very easy, because at the click of a button I have information," he says. "People gather around me. They want to see what's new."

Counterintuitively, the company has found that its poorest customers—those who rely on the system as their only source of electricity—make the best credit risks. "Our loan officer is that SIM card in the device that can shut it off remotely," says Chad Larson, M-Kopa's finance director and its third co-founder. "We know that it's important for them to keep their lights on at night, so they can be counted on to keep paying." The repayment rate is 93 per cent for the solar power system and 98 per cent for secondary products.

Since its commercial launch in October 2012, M-Kopa's Nairobi headquarters has been an active construction site, as builders race to keep up with its growth. Last year the company spilled over from the stone building that house its offices to the lot behind, where it erected two long barnlike buildings for its customer-care and engineering operations. Other departments work out of trailers on what used to be the front lawn, and in October carpenters were busy building a nursing area and a prayer room for the increasingly large and diverse staff. M-Kopa directly employs about 700 people in the three countries in which it operates, along with about 1,500 sales agents such as Opiyo working on commission. It's been adding about 50 workers a month.

Revenue has grown rapidly, from about \$15 million in 2014 to an estimated \$30 million this year, and the company says it will double in 2016. In September, M-Kopa announced it had sold a total of 250,000 systems; it aims to break the million-unit mark by the end of 2017. Every day about 600 new customers plug in their solar panels, meaning the company is extending loans of almost \$100,000 a day to people who might otherwise not have access to credit. "We're really taking a bet on anyone who is willing to give us their phone number, their ID number, and a down payment," Moore says.

The company sees three paths for growth: broadening its customer base in East Africa, expanding into other countries, and selling more products to its existing clients. “There are all sorts of places with massive populations where it’s completely black at night,” Vaughan says. Next year, M-Kopa will introduce a kit that includes an extra battery and a small television. It also hopes to roll out a small refrigerator.

The management team is exploring the potential for collecting data from its devices. Employees at its call centre can already pull up graphs showing how a customer’s battery is charging and discharging, allowing them to spot duds to either fix or swap. They can also look at the performance of the solar panels over time, detecting when a panel has been mounted on the wrong side of a roof or if it’s gathered dust and needs to be wiped clean.

M-Kopa’s current customer contract stipulates that the data the company amasses can be used only to improve customer experience, but the company has plans to collect listener and viewership data from its radios and televisions. “There’s data we can gather that practically no one else can,” Larson says. The company has received a grant from the reinsurer Swiss Re to explore the possibility of using its system to collect weather data from its devices. Solar panels can already tell the company when

the sun is shining, and it’s experimenting with adding instruments that measure barometric pressure, humidity, temperature, and perhaps even rainfall.

M-Kopa’s challenge will be to manage its rapid growth while maintaining its founders’ vision of building a business with no trade-offs. While the company takes care to explain the terms of its loans, it’s not always clear that its customers understand they are entering into a financial—rather than a traditional retail—relationship. And as M-Kopa grows larger, the temptation for competitors to hack or copy their devices will rise.

In November, M-Kopa received a clear vote of confidence when it completed a \$19 million investment round, including \$10 million from Generation Investment Management, a fund co-founded by former US Vice President Al Gore that’s also invested in SolarCity, the biggest US rooftop solar installer, and digital thermostat maker Nest Labs. “We think they have the potential of being a multibillion-dollar African success story,” says Colin le Duc, GIM’s head of research. Other investors in the round included Virgin’s Richard Branson and AOL co-founder Steve Case.

“If you take the long-term view and if you treat low-income people as customers, not charity cases, you can change the world,” Moore says. “Our customers’ lives are improved as our lives are improved.” **B**

A home outside Nairobi



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SVEN WIEDENHAUPT

ET



WALL ST

Full-Time Traders, Overtime Refs

Some of finance's finest pull
double duty on the gridiron
By Mary Pilon

Illustrations by Sara Andreasson



HH

uring the workweek, Hugh Campbell can be found in the Park Avenue offices of the Bank of New York Mellon, where he's a managing director. He focuses on high-net-worth families, with about 300 individual clients and four BNY Mellon offices under his watch. His work wardrobe consists of classic navy suits and crisp white shirts.

On the weekend, however, from September to January, Campbell wears the black-and-white stripes and whistle of a Division I collegiate football referee. He's been doing it for 15 years, first with the Big East, now with the Atlantic Coast Conference. His office in New York is filled with memorabilia including signed footballs and photographs of games refereed past. "My wife said I couldn't keep it at home any longer," he says.

One grey Saturday in late October, Campbell, 57, and seven of his fellow refs prepare at a hotel in Louisville for a meeting of the University of Louisville Cardinals and the Boston College Eagles. They spend the evening before and the morning of the game going over what plays to expect from each team, analysing calls from the prior weekend, and commiserating about the grim weather. Almost all of them have full-time jobs outside the world of sports. In the stadium, as the teams warm up behind them, their conversation remains practical, designed to get them in sync with each other before they take the field. The job can be thankless and exhausting—and, in Louisville, soggy. Campbell loves it. "You know, like a trading floor—you banter," he says, adjusting his black baseball cap. "That's like what we do. We banter before the game. We're ready for anything."

The similarities might not be obvious at first, but those who do both would tell you that trading and officiating have a lot in common. Both are high-energy and testosterone-charged and reward technical obsession and quick thinking. You'll find finance guys (they're almost all guys) officiating on the sidelines of most Division I sports in the NCAA and just about every professional sport. Not that you'd be able to pick them out as desk-chained office dwellers—these guys are fit. A soccer official might run as many as 11 kilometres a game, 30 to 40 games a year. And as more of the trader's work becomes automated, the side gig offers a visceral escape from an increasingly screen-heavy day job.

The godfather of Wall Streeter refs is Dick Bavetta. He ran the hardwood for 2,635 consecutive NBA games before hanging up his whistle last year. Bavetta was working at Salomon Brothers in the 1960s and playing basketball with the Wall Street employees' league when he got interested in officiating. He began volunteering to referee games for Catholic high schools in his native Brooklyn, and in the fall of 1966, he attended an eight-week course on officiating for \$25. ("Best return on investment of my life," he says.) By 1990 he'd left business to ref full time. "On Wall Street, you had to learn people skills," Bavetta says. "And as a referee, you need to handle people every night. How you do that is observed by millions of people. It can be an adversarial environment. Refs are solitary figures."

Thick skin is a must. Conflicts with coaches and players are to be expected, to say nothing of the chorus of booing from a disagreeable crowd. Threats and name calling, too. "When you're managing a project, you're herding the cattle," says Fotis Bazakas, a professional soccer referee who's also a corporate consultant for Aon, a multinational risk management conglomerate. "Refereeing is very similar. You have 22 guys out there who are being paid a lot of money and are just as passionate about soccer as you are. It becomes clear if you can do it, if people believe you. Conflict management is a huge part of both jobs."

Although the work is seasonal, referees are paid, and in some cases, they're represented by their own union, just like the players. NFL officials can earn \$25,000 to \$70,000 a season, collegiate referees less than that. MLB umpires can crack six figures—though baseball's longer season typically means forfeiting outside work. Leagues often cover hotel expenses and offer a per diem for food. They're hardly finance perks, but money isn't really the point. For refs who



“You know, like a trading floor—you banter. That’s like what we do. We banter before the game. We’re ready for anything”

are former athletes, it’s a way to stay connected to a sport they love. For those who are fans, it’s a way to watch the game from one of the best vantage points in the house. For Campbell: “I wanted the challenge of it.”

He started officiating high school and Pop Warner football games in 1981, just for fun. Like an athlete would, he began working his way up through the sport, taking courses and going through certification training. “Clients get a kick out of it,” Campbell says, though he occasionally gets “some good-natured critiques on things that happened during the game.” Turnover is low, but Campbell has to reapply for his officiating job every year. ACC officials grade his calls for accuracy, and each game becomes part of his performance evaluation. Assignments for bowl games are based on a season’s performance, much like a bonus at a firm. Many refs say they have nightmares about blown calls.

As the rain begins to come down in Louisville, Campbell stands stern-faced on the Cardinals’ sideline, his eyes never leaving the ball. There are typically eight officials on a football field, each with a specific duty, including a referee, an umpire, a centre judge, and a field judge. Campbell is a line judge, looking for things such as offsides, where a defensive player crosses the line of scrimmage before the ball is put into play; the precise point when a player runs out of bounds; and other penalties and rules of play. He gets a few boos over the course of the game, but in each case the anger is short-lived, quickly turning back into drunken, rapturous cheering.

On any given call, an official typically gets jeers from one side and cheers from the other, but in general the elegance of his work is in not being noticed. Refs engage in a quiet ballet on the field, communicating across the yardage with hand signals and whistle blasts, darting out of the way of coaches and players. Despite showers that come and go, the game play in Louisville is relatively clean, making Campbell’s job much easier. Louisville’s defense is a bit ragged, but they lead 7-0 at the end of the first quarter. “I watch so much football and love the game,” Campbell says. “But I couldn’t care less who wins.” (Louisville did, 17-14.)

Campbell and his fellow referees will spend hours after a game debriefing, either at a nearby hotel or in a designated spot near the stadium, depending on the facility. They’ll go over

everything play-by-play, debating what went wrong, what went right, and what they could improve. This routine is required by many leagues, but it’s also a good way to blow off steam. The refs don’t spend any time lingering on the outcome in public and leave the stadium discreetly. By the time the victorious Louisville players have rushed the field and the fans are trickling into the parking lot, Campbell and his colleagues have been escorted by police back to their hotel. (The police took them to the field that morning, as well.)

The escape is quick by design. “When we leave, we’re not always the most popular guys,” Campbell says.

From the hotel, he catches a flight back to New York. He needs to get back to the city for Monday’s market opening. **B**

Trader Signals

vs.

Referee Signals



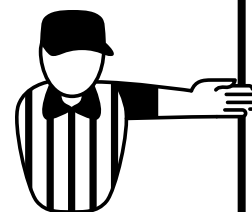
Sell



Touchdown, field goal, or extra point



Eight



First down



Stop



TV or radio timeout



January



Horse-collar tackle



Brad Pitt

+



Steve Carell

+



Ryan Gosling

+



Christian Bale

+



Financial markets



Real estate bubble

Sadness

=

PRETTY GOOD MOVIE

How The Big Short Hollywood-ised the financial collapse. (Hint: It involves a bubble bath.) By Claire Suddath

The *Big Short*—based on Michael Lewis’s account of the 2008 financial crisis and directed by Will Ferrell’s writing partner, Adam McKay—is a ruthless takedown of Wall Street disguised as a snarky Hollywood romp. In the movie, a group of renegade brokers and traders bet against the housing market and make a killing while the rest of the finance world weeps. Fun! The way those renegades did it, however, presents a very big film-making problem: How do you dramatise a series of financial trades so convoluted, so abstruse, that even the people in on the deals didn’t always understand what was going on?

The answer: celebrity cameos and diagrams. Lots of them. To help the audience follow along, McKay periodically stops the action for brief financial tutorials. Sultry actress Margot Robbie defines subprime mortgages while sipping Champagne in a bubble bath. Anthony Bourdain shows up to compare the way banks packaged the bad mortgages into top-rated bonds to how a shifty cook might trick people into eating three-day-old fish by dumping

it in a stew. Selena Gomez visits a Vegas casino with economist Richard Thaler to explain collateralised debt obligations. In one scene, a Deutsche Bank trader loosely based on the real-life Greg Lippman and played by Ryan Gosling explains the housing market’s vulnerabilities using a game of Jenga.

Gosling stars alongside Christian Bale, Steve Carell, Marissa Tomei, and Brad Pitt (whose Plan B produced the movie). All those big names and pretty faces go a long way toward making financial instruments less boring. McKay clearly hopes his cast’s fame will help draw in the type of people who only watch things with superheroes or car chases—a two-hour cinematic lecture on how the economy collapsed may sound a little daunting, but, hey, Ryan Gosling’s in it! More important, the director knows a moviegoer will wrestle with hard truths if she can do it while laughing at their absurdity. There’s a reason Jon Stewart once tied with Tom Brokaw and Anderson Cooper in a Pew Research Center survey of the most trusted news anchors in America.

Unlike Martin Scorsese in 2013’s *The*

Wolf of Wall Street, to which *The Big Short* will undoubtedly be compared, McKay goes light on the flashy wealth and instead populates his Wall Street with a bunch of silly, greedy numbskulls. “How can the banks let this happen? That’s not stupidity, that’s fraud,” says Carell’s character, a Morgan Stanley hedge fund manager based on the real Steve Eisman. “Tell me the difference between stupid and illegal, and I’ll have my wife’s brother arrested,” Gosling retorts. Sure, *The Big Short* has a scene in a strip club, but it’s only because Carell’s character wants to talk to the strippers about how they financed their condos.

The director may have figured a way around the financial jargon, but he can’t do much about the movie’s other problem: It doesn’t have an ending. As Gosling reminds the audience—he literally turns to the camera and speaks to it—all of this really happened. Just a few years ago. And we’re still dealing with the aftermath. The characters’ names may have been changed, but they represent real people, many of whom still have jobs on Wall Street. And sure, the good guys win, but the bad guys—the banks that sold predatory mortgages to people who couldn’t afford them—they win, too. And if they both win, who loses? Take a guess. **B**

**WE’LL WRESTLE
WITH HARD
TRUTHS—IF WE
CAN LAUGH WHILE
WE DO IT**

NOT ENOUGH COOKS

The restaurant industry is in a talent crisis. Its solution: Company-sponsored yoga

By Elizabeth G. Dunn

Joe Kindred's cooking career has taken him through top kitchens in San Francisco and Chicago, but when he decided to open a place of his own, the chef passed up big-city fame to return to his sleepy hometown of Davidson, North Carolina, a suburb of Charlotte. His restaurant, called Kindred, has become a critical darling (one of the best new restaurants in the US this year, according to *Bon Appétit*) and an instant local hit. As much as that success draws from the restaurant's stunning historical location and its use of local ingredients, Kindred says, it really comes down to the quality of the kitchen staff—and his ability to hang on to them.

For the past several years, restaurant owners have been facing a major shortage of good cooks. The problem is especially pronounced in New York and San Francisco, where the high cost of living has young culinary professionals fleeing to more affordable locales. The growing number of ambitious restaurants outside traditional hubs has spread the deficit nationwide. Fine-dining restaurants are a low-margin business, so rather than try to compete on wages, employers have had to come up with more creative ways to make their cooks stay.

"I've closed the restaurant for lunch in order to take the team out back and play dodgeball, when I can tell they really need it," Kindred says. He and his wife, Katy, who's a partner in the restaurant, also established the Big F---ing Cookie Award, given with great fanfare each week to a staff member who's gone above and beyond the call of hospitality. "We have 150 seats and everybody eating small plates, so there's no way a single chef can touch every single thing that

leaves the kitchen," Katy says. "Whether or not your cooks care makes or breaks a person's dining experience."

The Kindreds' efforts may sound like small potatoes compared with the lavish perks offered by Silicon Valley startups (Zen meditation rooms; on-site gaming arcades). But a focus on job satisfaction represents a change for the hospitality industry, which traditionally has taken a hard-knocks approach to employment practices, as any casual viewer of *Hell's Kitchen* knows. Even benefits such as health insurance, 401(k)s, and paid time off—standard stuff for your average office worker—are still far from universal in the restaurant world.

Now workers have the upper hand. A survey conducted this summer by Culinary Agents, a networking and job-matching site for the hospitality industry, showed that career development was of particular concern to kitchen and dining room staff considering potential employers. To keep his up-and-coming cooks happy, Tom Colicchio's Crafted Hospitality group has instituted such programs as the Sous Chef Supper series, where they can introduce original dishes to the public. Others are making it easier for their cooks to stay healthy: Chef Tony Maws of Craigie on Main in Cambridge, Massachusetts, offers company-sponsored yoga classes for employees. At SPQR in San Francisco, executive chef Matthew Accarrino has led his kitchen staff on bike rides up to Napa Valley to visit the restaurant's partnering farm.

What it all boils down to is fairly simple, says Adrian Giovanelli, executive chef of Roaring Fork restaurant in Austin. "The crazy yelling, screaming, and shouting doesn't resonate with this generation," he says. "You can't be a tyrant anymore." **B**

Pack Your Knives



THE KITCHEN EXODUS

The New York restaurant world has seen a number of high-profile defections recently. Here are five of the biggest losses.



Gavin Kaysen

Used to be executive chef at Daniel Boulud's Michelin-starred Café Boulud.

Left for Minneapolis, his hometown, where he runs Spoon and Stable, focusing on seasonal Midwestern ingredients.



Peter Serpico

Used to be director of culinary operations for David Chang's Momofuku empire.

Left for Philadelphia to open his own restaurant, Serpico, serving contemporary American cuisine.



Michael Toscano

Used to be executive chef at Perla, one of *Esquire's* best new restaurants of 2012.

Left for Charleston, South Carolina, where he's planning to open a restaurant of his own next year.



Matthew Lightner

Used to be chef at Tribeca's high-concept Atera.

Left for Napa Valley, where he opened Ninebark, serving casual, market-driven California cuisine.



Gabe Thompson

Is executive chef of Epicurean Group, which runs Dell'anima, L'Artusi, L'Apicio, and Alta Linea. **Leaving for** Washington, DC, along with his wife, pastry chef Katherine Thompson, a DC native.

Work Doesn't Have to Be Hard

Soft-edged furniture for a comfy-cozy office

By Monica Khemsurov

Patch acoustic panels by Stokke Austad for GU

\$1,000; gu.no

Channel the tranquility of the Arctic with these gorgeous noise-damping panels, made with textured wool from a 120-year-old Norwegian mill.

BuzziShade by Stal Collectief for BuzziSpace

\$1,724; yliving.com

This comically large felt-covered lamp would brighten up any workplace. Bonus: The soft fabric absorbs reverb, which makes it great for echo-y open-plan offices.

Pilot chair by Barber Osgerby for Knoll

price on request; knoll.com

The pillowy back and seat of this desk chair flex to suit the sitter. Upholstered or stainless steel arms are optional.

Pix Pouf by Ichiro Iwasaki for Arper

from \$762; arper.com

Use this graceful pouf as a side table, an inviting seat for guests, or simply a late-afternoon meditation spot. Choose from seven size options, the largest of which seats five.

**Active Duty
mobile bookcase
by Heartwork**

\$455; heartwork.com

These petite bookcases easily roll, even when full. They double as room dividers, which come in handy in flexible workspaces.

**Color Wheel ottoman
by Alexander Girard for
Herman Miller**

\$2,100; hermanmiller.com

Girard designed this piece in 1967, a time when he thought offices were getting "more inviting." He turned out to be ahead of his time: The ottoman went out of production a year later, only to be given a splashy reissue in 2014.

**Arlo sofa by
Most Modest for HighTower**

\$3,250; hightoweraccess.com

A long, squishy sofa encourages colleagues to make themselves comfortable. This one also comes in a high-backed version to provide extra peace and quiet.

**Allstar chair by
Konstantin Grcic for Vitra**

\$1,100; vitra.com

With its rounded edges and chunky plastic arms, this is the safety scissors of chairs—in a chic way. The fuzzy wool upholstery comes in a dozen bright colours, so you can mix and match.

**Flo desk lamp
by Foster + Partners for Lumina**

\$780; m2l.com

The LED bulbs in this long-stemmed lamp can be dimmed for softer lighting as needed.

**X table by Kibisi
for Holmris**

\$1,600; suiteny.com

This sleek desk relies on the same design principle as your grandmother's ironing board. Use the hand crank to raise or lower it to whatever height is comfortable.



SVEN WIEDENHAUPT

General manager, Jumeirah Emirates Towers Hotel

Education

"I actually wanted to be a pilot, but I didn't have the stomach for it. A little bit of turbulence and the world's ending for me."



At age six months, with his father in Frankfurt

Box Hill School, Surrey, UK, class of 1982

Université de Diavox, Lausanne, Switzerland, class of 1984

Ecole Hôtelière de Lausanne, class of 1988



"Whether we were learning to peel potatoes or learning accounting, there was this mutual understanding that we were all there because we wanted to be there."

Work Experience

"Something I was taught early on was, be what you want to be, not what you are. So I was hired as a maitre d' and within three or four months I became the restaurant manager."

"Doha is where my career skyrocketed. It was an incredible three years. I probably greeted 40 or 50 heads of state: Hugo Chavez, David Cameron, and others."



"I had always had my eye on Dubai. Not being part of it, I felt like I was missing the party."

1988-1990

Manager in training, Somerset Marriott, New Jersey/Assistant restaurant manager, Marriot Marquis, New York City

1990-1995

Maitre d'hotel, Restaurant manager, Intercontinental New York City/ Restaurants and bars manager, Intercontinental San Francisco

1995-1997

Assistant director of F&B, Scottsdale Princess Resort, Arizona

1997-2000

F&B Director, Rooms division director, Grand Geneva Resort & Spa, Lake Geneva, Wisconsin

2000-2001

Director of operations, Miramonte Resort, Indian Wells, California

2001-2002

Executive director of F&B, Vintage Inn, Yountville, California

2003-2004

Director of F&B, Intercontinental, New York City

2004-2014

Multiple positions, Four Seasons, New York City, Doha, Damascus, West Indies

2014-present

General manager, Jumeirah Emirates Towers Hotel, Dubai

Playing golf in Nevis, West Indies, 2013



"Joining the Four Seasons is, within the industry, sort of hallowed ground. We reconceptualised food and dining. We brought it Joël Robuchon, the very famous French chef."

With his wife Michele in Beirut, 2012



"At the time, Syria hadn't fully flared up. It was only as the year progressed that there was the realisation it wasn't getting any better."

Life Lessons

1. "Bloom where you're planted."
2. "Live today."
3. "Today is not a dress rehearsal."



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